

Improving Lean Project Management
with Customer Value Centered Practices

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Master's Thesis
Degree Programme in
Information Systems Management
2016



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Degree programme Masters' Degree Programme in Information System Management, Haaga-Helia University of Applied Sciences.	
Thesis title Improving Lean Project Management with Customer Value Centered Practices	Number of pages and appendix pages 60 + 14
<p>The aim of this Masters' Thesis is to investigate how software development project managers gain understanding on customer value and ensure customer value goal alignment in their present software development projects and to provide customer value goal utilizing best practices for Fujitsu Finland software development project management.</p> <p>The thesis theory basis handle customer value and lean project management as a concept, customer value goal setting and monitoring in continuous improvement context and in guiding high-performing project teams.</p> <p>The empirical part of this action study was conducted at Fujitsu Finland Helsinki Office from September 2015 to March 2016. It started by constructing the present situation of customer value utilization using interviews, queries and workshops with a focus on following three improvement areas; customer value goals, shared understanding of customer value among the project team and customer value driven continuous improvement. After analyzing the areas, a suitable Best Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects is developed together with a workshop team consisting mainly of software development project managers.</p> <p>As a result the project managers' level of customer value understanding was improved and the feedback on the best practices was positive, so the instructions could be accepted for a pilot project to be started after this research.</p> <p>In conclusion this research argues that customer value goal clarity improves the customer value alignment making the project deliverables more valuable for the customer. The practices respond well to the improvement areas of the research; Quality Function Deployment method applying practices provide steps for project managers to establish clear customer value goals per each project. These goals can be utilized both in sharing the customer value understanding with the software development teams and in planning and checking the direction continuous improvement.</p>	
Keywords Customer value, lean project management, customer value goals, indicators, continuous improvement, Quality Function Analysis, Workshop	

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1 Introduction

“Only two kinds of people can catch a snake – one who is an expert and the other who does not know it’s a snake.” Unknown quoted by Bhatia 2012 (33).

Fujitsu Finland Oy is a 2600 employee company in ICT solutions, services and infrastructure field and is using lean operational strategy in improving its working methods and ways of bringing value to customers. Fujitsu has an established set of lean principles, and now Fujitsu wants to develop its lean practices in software development projects to better align these lean principles and to improve customer service and better customer value enablement. What is lean project management in practice? How customer value goals can be deployed in project management to ensure customer value creation?

The study provides information to Fujitsu managers on current project management lean alignment and customer value utilization from different perspectives; from project team members’, project managers’ and lean consultants’ eyes. Especially Fujitsu lean consultant team is not currently highly utilized in this internal lean transformation of Fujitsu projects, but this study utilizes lean consultant viewpoint in developing Fujitsu lean project management.

The study is in line with Fujitsu global operational model and fulfils the business needs as it aims for increasing customer value enablement in software development projects; the research explores practices to take Fujitsu project management a step forward with systematic customer value thinking. These practices concentrate on supporting project managers’ efforts in agreeing on clear customer value goals with the customer and in ensuring that the development activities and project end result are aligned accordingly. Also Fujitsu Finland Business and Application Services department believes that lean project management practices provide sustained competitive advantage making Fujitsu projects clearly different (Fujitsu 2014, 15) as Fujitsu Nordic Strategy states.

Read more in Secret appendix 1, Lean of Fujitsu Finland.

1.1 Concepts

Constraint:	A restricting factor in a process; a bottleneck.
Customer, external:	individual, user group or organization receiving the project outcome, not part of the organization producing the product or service. (Charron, Harrington, Voehl and Wiggin 2015, 482).
Customer, internal:	The next unit or individual in the work flow receiving the sub-process outcome – the output from any activity inside the organization. (Charron et al 2015, 482).
Customer value, benefit:	what the customer needs, wants and is willing to pay for (Bell et al 2011, 33). “A measurable improvement resulting from an outcome perceived as an advantage by one or more stakeholders, and which contributes towards one or more organizational objectives” (Axelos 2015, 325).
High-Performing team:	A small number of people with complementary skills with common purpose, set of performance goals and approach for which they hold themselves collectively accountable. They meet and communicate effectively in a way that raises morale and alignment, and engage with all team’s key stakeholder groups and ways that individuals and the team can continually learn and develop (Hawkins 2011, 214).
Non-value adding time, NVA:	the activity not required to deliver the product or service to the customer. (Charron 2015, 245).
PDCA -cycle	Cycle of continuous improvement consisting of phases Plan, Do, Check and Act (Oakland 2014, 120).
Lean	An operational strategy focusing on faster flow of customer value delivery and lower levels of unproductive work –waste. (Modig & Åhlström 2013, 124).
Prince2:	A project management method (Axelos 2015, foreword) used at Fujitsu Finland.
Prince2 Agile:	The extension guiding Prince2 methods to adapt to agile projects (Axelos 2015, 5).
Project:	“a temporary endeavour undertaken to create a unique product, service or result” (Project Management Institute Inc. 2016)
Project management:	“Application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.” (Project Management Institute Inc. 2016)

Project team:	a team, with members often drawn from different teams, brought together for a specific, defined and time-limited task (Hawkins 2011, 214).
Value adding time, VA:	activity required to deliver the product or service to the customer, which is needed in value creation. (Charron 2015, 245).
Value stream, flow:	The complete, realistic flow from placing the order to delivering it, including all the done value and waste adding activities in producing perceived customer value. (Charron et al. 2015, 247).
Value creation:	Process of customer using the end product or service fulfilling customer needs and / or desires. (Grönroos 2011, 282)
Wait time:	The time customer spends waiting to receive a product after placing an order; lead time, through-put time. (Charron et al 2015, 489).
Waste:	Unnecessary activities which don't contribute to customer value delivery, waste has three different types: <i>muda</i> , <i>mura</i> and <i>muri</i> . <i>Muda</i> is non-value adding activity, <i>mura</i> is irregular non-standard work and <i>muri</i> refers to overburden. (Charron et al 2015, 157).

2 Improving Lean Project Management with Customer Value

“Tell me and I will forget, show me and I may remember, involve me and I’ll understand” Chinese Proverb (Bhatia 2012, 75).

This action study aims for providing clear and practical lean best practices instructions for Fujitsu Project Managers, as the need for this has been recognized by Fujitsu management in their operational strategy and by people working in projects (Fujitsu, 2014). This research creates best practices instructions, which provides means to form measurable customer value goals for the project and to ensure these customer value goals are being fulfilled during and after the project.

The study also provides information on how well customer value is used among the project managers in their own and their project teams’ perception - how well the project managers understand the concept of customer value and how well they are clarifying and following up on customer value goals in their projects.

2.1 Objectives and Research Questions

The research baseline analyses concentrates on investigating on customer value utilization in project management. To have a clear starting point, a query is conducted among software development project managers to see, if project managers have a good understanding on what the customer value is as a concept and in their current projects? What kind of practices, if any, do they use to agree on customer value goals with the customer? Do they share this information with the team? Do project managers have means to monitor how the customer value is being fulfilled during the project subsequent delivery stages, and do they check this customer value alignment with the customer as the final delivery stage is reached? To get a comprehensive picture on the baseline situation on customer value visibility, a group of people working in project managers’ teams are interviewed. A small set of people from different roles (such as customer solution architects, technical architect-developers and test managers) are asked, how do they see the current situation inside projects; are project managers promoting and ensuring customer value thinking? Do the software development team members understand, what customer value is in their current projects?

The researcher collects also Fujitsu Lean Consultants’ suggestions for best project management practices. The most suitable principles and practices collected from the lean

consultant interviews are discussed and experimented with the workshop team to see, if they fit in Fujitsu software development project management.

The cornerstones of this research are to follow lean thinking and to form the best practices document in a close dialogue with a workshop team consisting of project managers to align the practices with their current and to get them engaged with the change by participation (Hawkins 2011, 40). The cooperation starts with a planning workshop with a team gathered from the software development project management team and its managers and with the researcher acting as a facilitator. This first workshop concentrates on identifying the three most important areas to be improved based on project managers' experiences.

These three objectives are:

1. Unconscious customer value expectations should be refined into specific goals in a software development project.
2. Sharing the customer value understanding better with the project team.
3. Having customer value driven continuous improvement before technologically driven improvement.

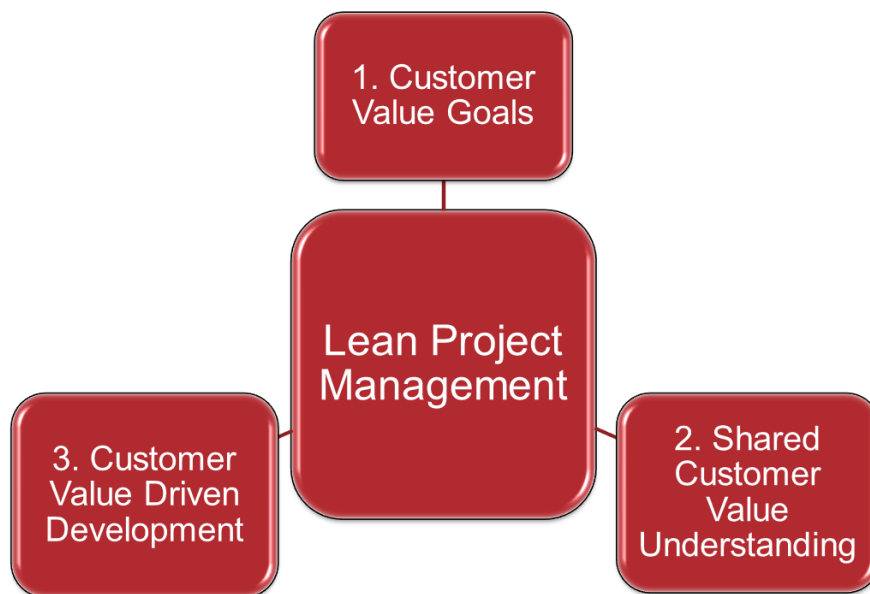


Figure 1, Fujitsu Lean Project Management Improvement Areas

These three most important areas for improvement are handled in the following three workshops in search for better practices for better customer value understanding and alignment, which suite Fujitsu project management. The researcher acts as a facilitator and places the theory ground on the topic of the day followed by a related exercise to work on. In one workshop Fujitsu Lean Consultant presents an introduction to a tool that was considered to be utilized in the best practices documentation.

After facilitating all the planned workshops the researcher constructs Fujitsu Project Management Best Practices document, which is presented to all software development project managers. Once the project managers are introduced to the new practices for a one month trial period, it is time to evaluate their first impressions of the instructions – a similar query as before is conducted again. How project managers' perceptions on their customer value alignment have changed and which practices do they find useful to take into use to understand and align with customer value in a more systematic manner in the future.

If the instructions document gain good feedback from the project managers and the thesis mentor Topi Caselius, it is approved to be piloted in a customer project after the study to put to test to see if it's successful enough to be spread as standard practice in all Fujitsu Nordic large- and medium scale software development projects.

2.2 Scope

This research concentrates in Fujitsu software development project practice improvement for projects having external customer and that are large and medium scale, non-agile and agile software development projects with a highly tailored solution based on external customer needs. The improvement strategy is based on lean, and no other philosophies or methodologies is considered for this research, as using lean is a chosen operational strategy at Fujitsu (Fujitsu 2014, 4).

The most useful role to work on lean transformation is the project manager, as it is the role planning and deciding the project practicalities. The study is not looking into the actual development efforts done by the project team, contracting or forming the project business case. Only the work done by project managers is in scope. The research concentrates only on the most important practices identified by the project manager workshop team to better address the issues the project managers are currently having with customer value.

The study considers the project management practices in relation to customer value in pre-project, initiation, sub-subsequent delivery stages, final delivery stage and post-project as described in Prince2 Agile methodology, but the majority of the practices focus on project initiation.

3 Customer Value as a Focus in Lean Improvement

"Since the early 2000s there has been three major changes; the biggest of them is that the power has shifted to consumers, the second is digitalization and third is Lean thinking, where you don't only think of resources, but how information flows in the company generating customer value." (Kasanen 2015)

This chapter describes the theoretical basis starting with customer value as a concept in Chapter 3.1, continuing with describing how to select customer value goals in Chapter 3.2 and ends with description of sustained continuous improvement towards better customer value fulfilment in Chapter 3.3.

3.1 Customer Value as a Concept

The main purpose of lean is to make customers successful, in other words maximizing the customer value. A simplified definition for customer value could be "customer value is a product or a service that the customer needs, wants and is willing to pay for" (Bell & Orzen 2011, 33). This customer success can be measured in monetary gains or more commonly making customer be or feel better off than before (Grönroos 2011, 282). Customer value can also be regarded as an equation where the paid price is reduced from the qualities or features gained (Ficarora & Cohen, 2009, Chapter 2.2 Increasing Revenues).

External customer is the person or organization paying for the product as well as the people using it, and internal customer is the next individual or a team receiving the work output, for example for software development team it can be the team taking care of the production maintenance. These different customer groups have different needs and expectations for the product; software development sponsor may have budget limitations and a time-to-market needs where end users have functional and usability needs, and maintenance group wishes first of all for robustness and easy installation. (Poppendieck et al 2010, 7).

Customer value can be direct or indirect (Modig et al 2013, 23). Direct customer value is the concrete outcome that the customer can create value with and make the customer more successful (Poppendieck et al 2010, 8). Indirect customer is - at its best - the nice-to-haves enhancing the customer experience; the work that is not absolutely necessary but is bringing extra value to the customer on top of the direct value (Modig et al 2013, 25). However, having a lot of indirect customer needs often stem from failure or delays in

fulfilling the direct need of a customer (Modig et al 2013, 59); such indirect customer needs are for example

- fulfilling request for change, when requirements we're understood wrong (Poppendieck et al 2010, 10)
- fix to a broken, unusable or inadequate product (Poppendieck et al 2010, 10) or
- reporting and other small tasks, when delivering the customer value enabling product takes too long (Modig et al 2013, 25).

Additional work with indirect value is only a more developed form of waste (Modig et al 2013, 60). The slower the delivery of direct value is, the more rework and parallel work there is in the process and the more time is spent working on indirect value. Having a lot of indirect value fulfilling tasks may bring extra income for the product supplier in form of change requests, but actually it is a waste producing structure that makes customer service poor. (Modig et al 2013, 59)

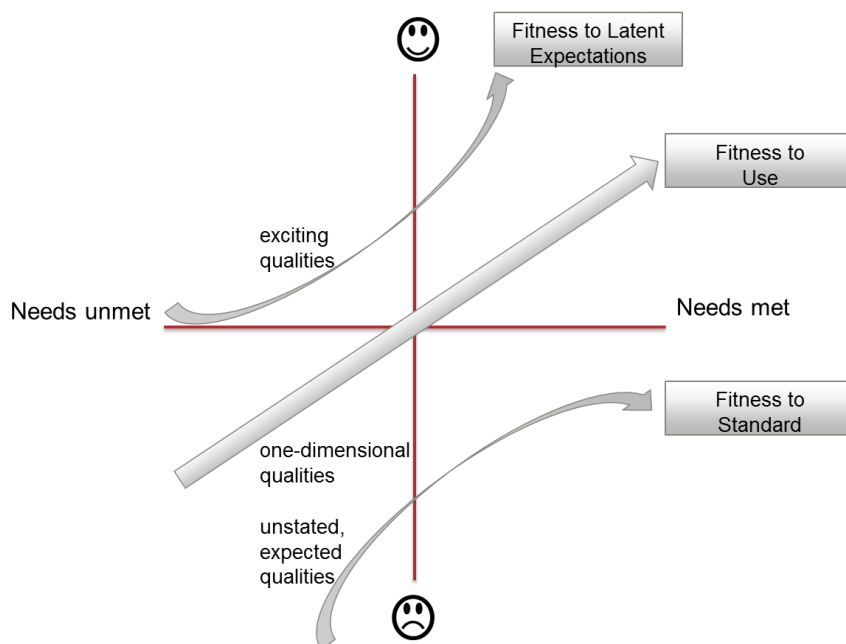


Figure 2, Kano's Customer Satisfaction Model (Ficalora et al 2009, Chapter 2.8).

Product characteristics bringing customer value can be looked from three different perspectives following Kano's model, as depicted in Figure 2 (Kano's Customer Satisfaction Model). These categories are:

- *Fitness to Standard*, also known as "must-be," "basic," or "expected" characteristics, the non-spoken but necessary to deliver customer value.

- *Fitness to Use*, also known as “competitive”, “more the better”, “one-dimensional” or “straight-line” characteristics, many times the focus in delivering customer value.
- *Fitness to Latent Expectations*, also known as “delighter”, “attractive” or “exciting” characteristics. Delivers indirect customer value. (Ficalora & Cohen, 2009, Chapter 2.8).

A competitive product development takes all these categories into consideration.

3.1.1 Customer Value in Value Flow

Lean approach regards customer value always in relation to efficiency; for example in literature by Zeithaml 1988, Day 1990 and Woodruff and Dardial 1996, customer value equals the benefits minus the sacrifices (Grönroos 2011, 282). In software development the sacrifices can be seen as usage of money, time and other resources.

Direct customer value adding time is the time spent processing the wanted outcome beginning from need identification and ending with its fulfilment (Modig & Åhlström 2013, 23). The whole process of enabling potential customer value needs to be viewed as a whole to avoid losing vital information in handovers between departments and teams in the workflow (Poppendieck et al 2010, 19). In this research the potential value enablement is separated from the actual value creation; not until the customer need is fulfilled and the end product or service is delivered for customer production usage, the customer can start creating value with it (Grönroos 2011, 283), as depicted in the Figure 3, End-to-end Flow of Facilitating Customer Value.

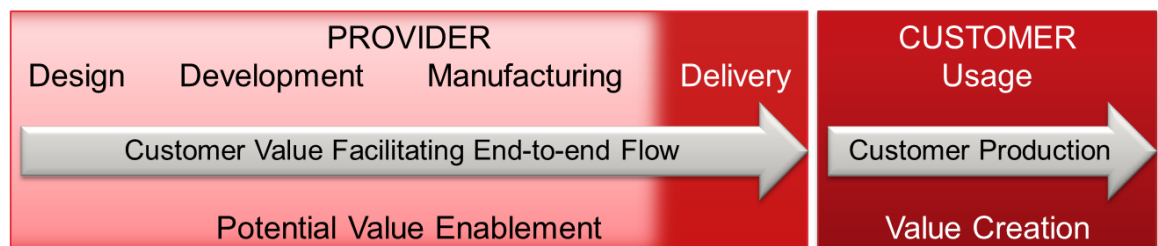


Figure 3, End-to-end Flow of Facilitating Customer Value (Grönroos 2011, 283)

From the service or product provider point of view, the flow unit is one item in which the customer value potential is built flowing from the design into customer delivery. Efficiency of this activity is traditionally measured from the resource point of view; the more a resource produces value the better, as depicted in a Figure 4, Resource Efficiency vs Flow Efficiency. The problem from the customer point of view is that the wait time of receiving one flow unit in customer usage and the actual value creation tends to take longer when resource efficiency is in the main focus (Modig et al 2013, 20).

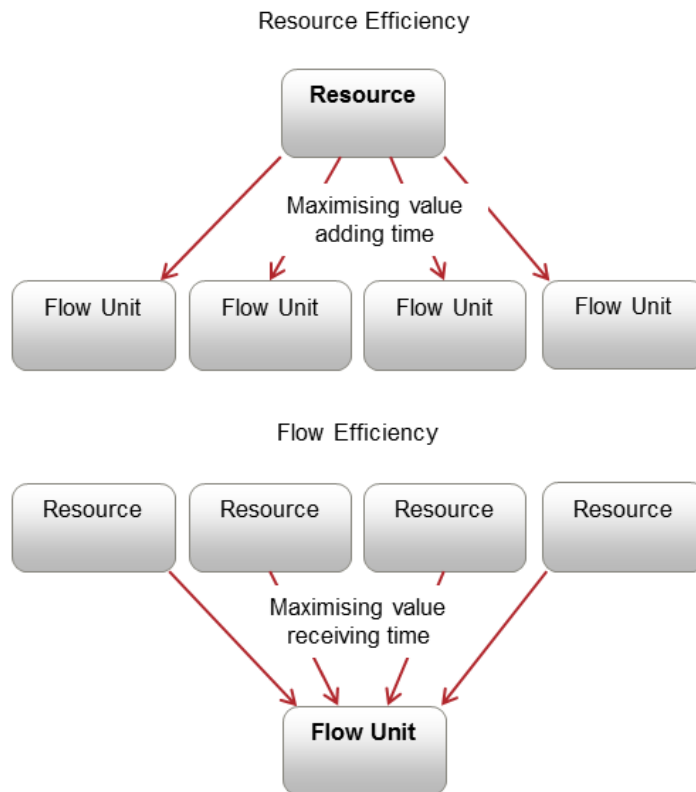


Figure 4 Resource Efficiency vs Stream Efficiency (Modig et al 2013, 21.)

Flow Efficiency concentrates on the time it takes for the customer receiving the value creation fulfilling flow unit and measures the time one flow unit – the direct customer value enabling object – flows through the customer value creation facilitating process from the beginning to the end. When the flow efficiency is maximized, the service provider adapts to the customers situation, not the other way around. Optimizing flow efficiency means ensuring there is always a resource working with the flow unit and forwarding it towards the customer (Modig et al 2013, 20). In software development one flow unit can be for example one user story, use case or feature (Poppendieck et al, 119).

Lean operational strategy stresses the flow over resource efficiency (Modig et al 2013, 124). Wait time is the main indicator measuring the time the customer waits for his need to be fulfilled (Modig et al 2013, 34 – 43). According to Niklas Modig (2015) the main reason for it is that it drives flow which fulfils the customer value and therefore minimizes the wait time; “The longer it takes, the more errands will come along.” Therefore flow efficiency improves resource efficiency as a side effect. To be successful a company needs to find an optimal ratio of these two efficiency types to stay healthy and implement their chosen strategy.

3.2 Understanding, selecting and prioritizing Customer Value Goals in Software Development

As depicted in the Figure 5, creating customer value goals begin by finding out what the customer needs and expectations are, then forming a customer value proposal fulfilling these needs and finally refining, clarifying and prioritizing the customer value goals with the customer (Manning, Reece & Ahearne 2010, 21.)

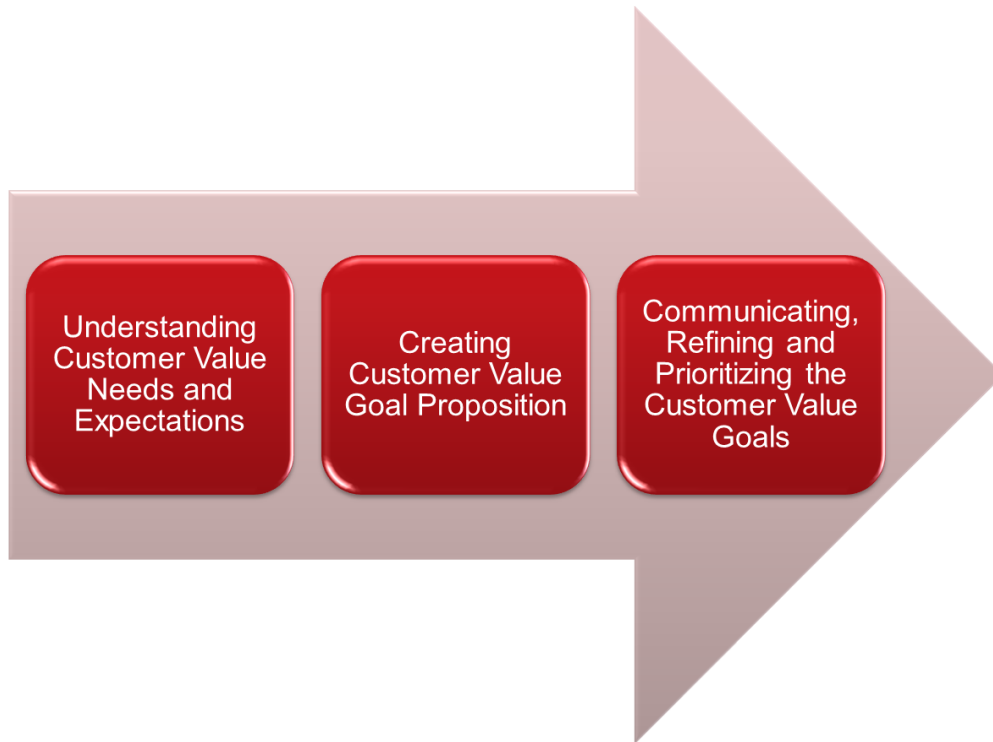


Figure 5; Creating Customer Value understanding (Manning, Reece & Ahearne 2010, 21)

Before software development starts, it is “critical to define its purpose in customer terms” as Poppendieck et al (2010, 36) states. In other words, customer value also in software development projects is a matter of agreement with the customer. Understanding how customers (especially the information system users) define value is in the focus of lean practitioners – not assuming but asking the relevant customer groups’ desires is the first step in delivering products that succeed in addressing real customer needs. This can take a significant amount of time and customer domain expertise (Manning et al 2010, 21). To clearly understand the customer value needs and expectations, one needs to engage with the customer by using customer segmentation, interviews, focus groups, surveys, sales and service data analysis and point-of-use observation. (Bell et al 2011, 26). When the initial customer value goal proposition is created, it is time to agree upon the customer value goals in detail with the customer in order to clarify and prioritize the customer value goals (Manning, Reece & Ahearne 2010, 21). If these goals are not clearly defined and agreed, the value is an unconscious concept, and it may (or may not) emerge as the end

product or service is in customer use (Grönroos 2011 quoted Korkman 2006, 282), and not delivering products with value means producing only waste.

Customer value is one of six aspects of a project that needs to have target levels with priorities to be controlled and managed, as depicted in Figure 6, Six Aspects of a Project (Axelos 2015, 39). Based on customer needs the targets either need to be fixed or can evolve throughout the project. Many times customer has limited budget and a set schedule to begin with, creating a fixed basis for the project. However, customer value can often be handled a constraint where the minimum viable level has to be fulfilled, but less important customer value goals can evolve during a project. On top of these typically fixed aspects, a more suitable area for change is often the quality and scope related details, as there is likely to be unnecessary functional or quality requirements wise to be removed once identified during a project. (Axelos 2015, 40). The priorities between the aspects as well as the priorities inside one aspect need to be clarified in the beginning of a project to support well-founded decision making during the project.

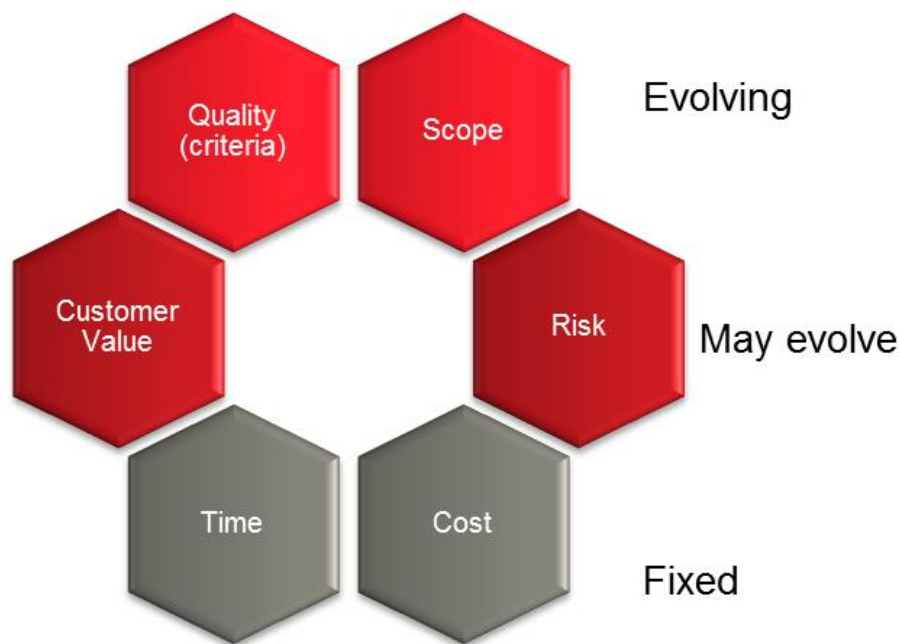


Figure 6, Six Aspects of a Project (Axelos 2015, 39)

One important Lean principle leading in better customer value understanding and alignment is letting the customer value form and refine throughout the project in a close customer dialogue. As Humble, Molesky and O'Reilly (2014, 108-109) state: "we are frequently wrong about what users of our products and systems will find valuable, planning out big programs of work in advance leads to an enormous amount of waste." As a solution Humble et al suggest (2014, 109-110) a lean-agile approach even in large scale programs with following principles improving the ability to adapt to new information:

1. Iterative continuous improvement process for company leaders.
2. Scientific work towards goals, which leads in identifying and avoiding waste.
3. Continuous delivery to reduce risk of releases, decreasing cycle time and making it economic to work in small batches.
4. Architecture supporting autonomous teams working in customer interface, having freedom to decide how they work to achieve the program level outcomes.
5. Small batch sizes with experimental approach to the product development process.
6. Increase and amplify feedback loops to make smaller, more frequent decisions based on the information we learn from performing our work to maximize customer value.

More information on continuous improvement can be found in Chapter 3.3, Sustained Continuous Improvement and on autonomous teams in Chapter 4.1.1, Elaborating Goals with Customer and Team.

3.2.1 Customer Value versus Cost Efficiency

In business life the selection and priority of customer value is aligned with strategy (Modig et al 2013, 108.) determining whether the organization is competing with price or quality, mass production or highly customized products. Many ICT companies focus on cost reduction as a primary way to improve organization's financial health, but "lean practitioners clearly understand that a primary focus on cost reduction, rather than value creation, is hazardous" (Bell et al 2011, 143). Already in 1992 Kaplan and Norton (71) suggested in their management journal article that financial metrics should be accompanied by operational metrics to support healthy business with continuous improvement and innovation. It also supports carrying out high customer value by translating it into specific measures and goals ushering management to direct the focus the work. Having a balanced set of indicators clearly shows if improvement in one area happens at the expense of the other or if it's done in a healthy way (72).

Lean is about creating value and eliminating waste with:

1. simplification,
2. quality improvement and
3. wait time reduction (Bell et al 2011, 143).

Cost reduction is nothing but an outcome of these actions above. Focusing only on financial metrics leads to short-term thinking which is not aligned with lean principles (Bell et al 2011, 143). If these fundamentals of lean accounting are not clearly understood, the CEO,

SFO and shareholders can quickly kill a Lean transformation in its beginning (140). This is a high risk especially during economic downturns (143). Humble et al (2014, 111) quotes John Seddon crystallizing this principle well:

“The paradox is that when managers focus on productivity, long-term improvements are rarely made. On the other hand, when managers focus on quality, productivity improves continuously.”

A more fruitful approach in considering productivity of a lean organization is measuring the customer value / cost ratio per software development team member, and comparing it to the competing organizations' situation. (Poppendieck et al 2010, 236)

3.2.2 Waste in Software Development

The best customer value enabling work is important but not urgent, as described in the Figure 7, Lean Perspective on Importance Paradigm (Bell et al 2011, 25).

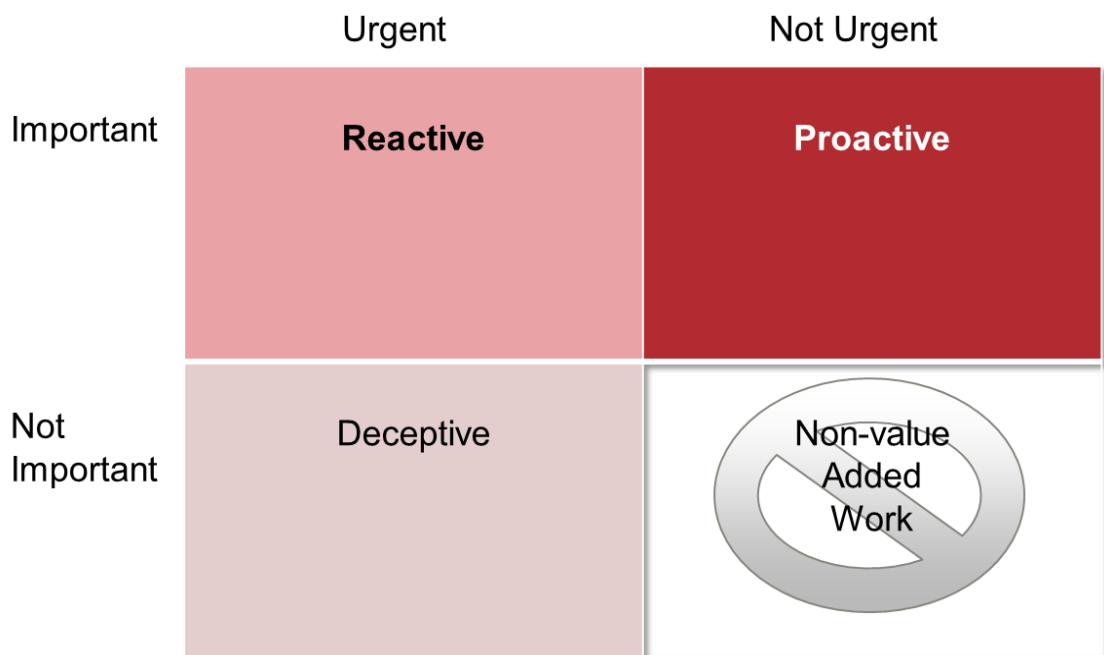


Figure 7, Lean Perspective on Importance Paradigm (Bell et al 2011, 25)

Lean focuses on proactive, planned and well prepared work, which is aligned with customer value goals and where the goal realization is measured. The more there is urgent but important fire-fighting type of work, the more wasteful the work processes are with non-quality work-arounds, interruptions, rework and unexpected problem solving. The third category, deceptive work includes work misaligned with company or customer value

goals, misunderstood tasks and unproductive meetings, and should be avoided as a joint effort in a project team. (Bell et al. 2011, 25)

One source of deceptive work is overproduction - doing wrong things. It means producing what the customers don't need or can't create value with (Modig et al 2013, 70) and is often caused by unnecessary requirements making it the most crucial source of waste, as it leads to producing other types of waste and the amount of its cost and complexity exceeds easily the customer value (Bell et al 2011, 7, 35). Unrealistic or unarticulated customer value goals, badly defined system specification or poor communication among customers, development and the maintenance team are main reasons leading in doing the wrong things (Poppendieck et al 2010, 111). Software development customers tend to order more features than what is needed "just in case"; using Poppendiecks (2010, 26-27) conservative estimate less than a half of the software code is in use making the software ten times more expensive than it needs to be. According to Poppendieck (2010, 28), cutting scope is the best approach when the aim is to provide customer value within time and budget constraints.

Another common source of waste producing deceptive work is over-processing; excessive or unnecessary work adds unnecessary complexity to the project deliverables during processing (Bell et al 2011, 35). There are lots of different aspects to this concept, for example unused software functionality, unnecessary transactions, excessive data collection, maintaining parallel systems with same data, unused reports that lead into doing wrong things, even though doing it well (Bell et al 2011, 320-321). Over-processing occurs especially when the technology enthusiasm and automation overrides the simplification and standardizing of the business processes. This becomes a problem when the system designers are keen on using the newest technology leading in applying complex solution to simple needs. (Bell et al 2011, 7).

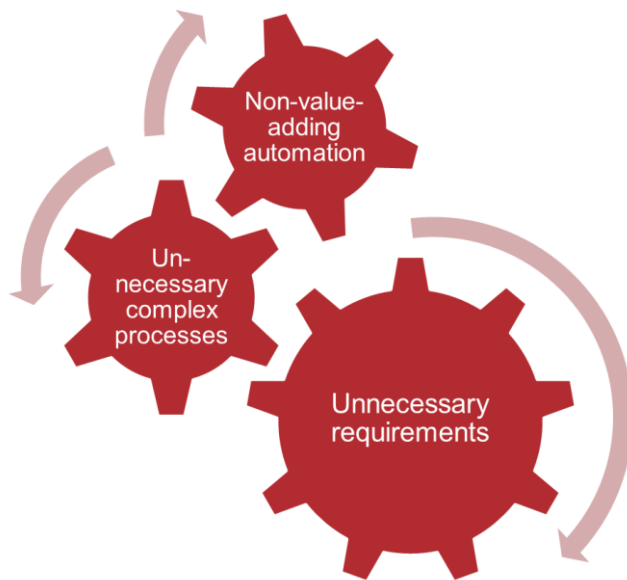


Figure 8, Self-Perpetuating Cycle of Waste in IT (Bell et al 2011, 7 and Poppendieck et al 2010, 26)

When you add unnecessary automation on top of overproduction and overprocessing, these waste types lead into “perfect storm” in software development, as depicted in Figure 8, Self-Perpetuating Cycle of Waste in IT. This can be fixed only by the business process owners and ICT organization as a joint effort. In developing appropriate information systems, the stakeholders need to continuously aim for simplifying and improving the business processes first. (Bell et al 2011, 7) To be able to do that, shared understanding of customer value is required.

3.3 Sustained Continuous Improvement

Continuous Improvement, in lean terms Kaizen, is one of central lean concepts and a basis of lean project management; it is a pursuit for unattainable perfection with never ending experimenting and learning (Charron, Harrington, Voehl and Wiggin 2015, 23) with main aim to improve customer value producing performance to the customers (2015, 263). Continuous improvement needs to be done in small increments to keep the decisions small and repetitive enough to build up the systematic decision making skills necessary for improvement efforts. (Humble et al 2014, 109). There are three rules to be adopted by each employee of a lean organization to make continuous improvement happen;

1. Surface: write your ideas down.
2. Implement; you make the change yourself.
3. Share it: post it, review it and talk about it. (Charron et al 2015, 288).

Every member of the organization must understand they should take responsibility in working towards the main purpose - and that improvement work is never finished. The

obstacles in the way should be treated as experimentation areas for better ways instead of objections to the improvement and change. (Humble et al 2017). This continuous improvement is practiced using Plan-Do-Check-Act cycle invented by Walter Shewhart (not Deming as commonly thought), where the feedback for evaluating the success of done actions guides the changes for the better in long term, not worse (Charron et al 2015, 45).



Figure 9, PDCA -cycle (Charron et al 2015, 45)

The PDCA –cycle has four stages, as depicted in Figure 9, Plan-Do-Check-Act Cycle. The first stage, Planning stage concentrates on current state analysis, identifying the area to be improved, and what changes are needed (Charron et al 2015, 45). Investing enough time to this stage is important, as project success is more likely when the software development team can spend enough time together with the customer to investigate the problematic area and identifying customer value needs and expectations by going to gemba or other means (by gathering data, measuring activity, interviewing the customer etc). Investigation is followed by planning and experimenting different solutions for the implementation and establishing the customer value goals. The detailed planning in a medium-sized and large lean project is done one increment at a time, suggested time span to be planned is 90 days – a larger storage of detailed plans for future is considered waste. The more the project manager can involve the software development team at this stage, the more comprehensive customer value understanding the whole team has when the Doing stage starts. (Bell et al 2011, 215).

In Doing stage the planned and prioritized actions are implemented (Charron et al 2015, 45). With limited scope, the software development team can focus on current problems

and deliverables with a healthy sense of urgency – and the project manager can report visible progress of the customer value goals to the stakeholders (Bell et al 2011, 216). Despite of the detailed plans, the execution phase can continue adjusting them to respond to changes. During this stage the most important activity for the lean project manager is to facilitate efficient problem solving in the team with micro-PDCA cycles. (219).

Checking stage consists of measuring and analysing the outcome success. This stage is critical in assuring that no bad decisions or wasteful processes are brought to the organization. (Charron et al 2015, 45) During this stage the selected customer value indicators are measured to be able to compare the results with the baseline figures. This may require simple observation of the developed software usage or use checklists, customer queries or other statistics derived from the software itself. (Bell et al 2011, 220)

Finally in Acting stage the successful changes are standardized and maintained to be shared throughout the organization and a next area for improvement is identified in a new PDCA -cycle. However, if the results are not acceptable, the change is rejected and a new cycle is started with new improvement actions to be planned (2015, 45).

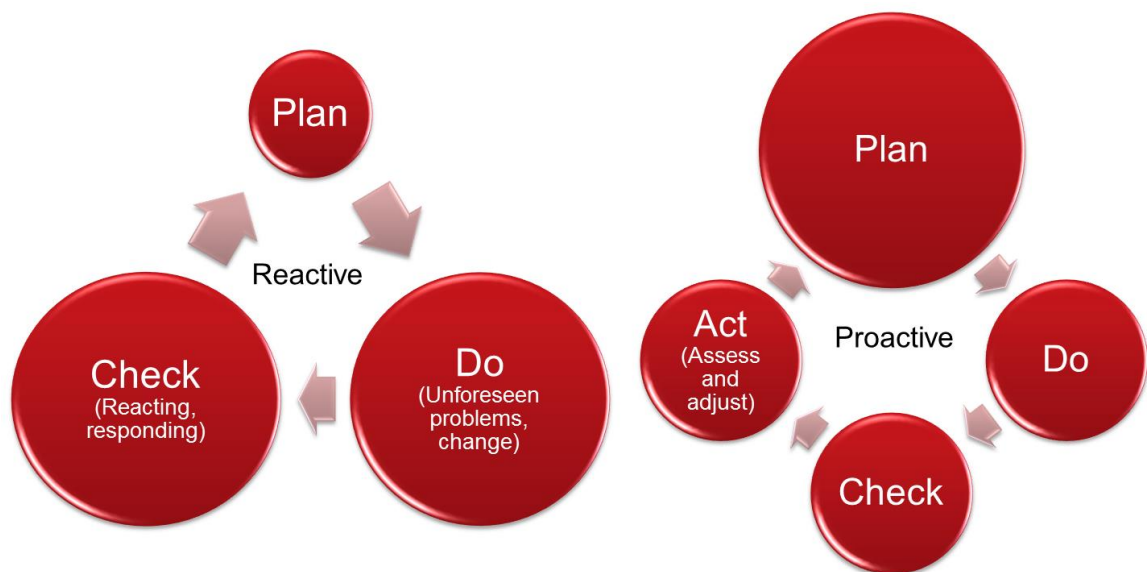


Figure 10, Reactive and Proactive Approach (Bell et al 2011, 221)

As stated earlier in Chapter 3.2.2, Waste in Software Development, a proactive approach is the most efficient working type in fulfilling customer value goals with less waste, as as depicted in the Figure 10, Reactive and Proactive Approach. (Bell et al 2011, 221) It is necessary for lean project managers to utilize PDCA in a project phasing and micro-PDCA in all problem solving to be able to achieve proactive working culture, learning team and continuous improvement. When the planning is done well with proper baseline measure-

ment and the acting stage is in place, where the results are assessed enabling team reflection learning, there will be less of the waste from unforeseen changes in the project. (Bell et al 2011, 221)

Involving the customer and the software development team in striving for better customer value goal fulfilment is essential in making a well-deployed and sustained improvement toward high-performance (Hawkins 2011, 40). At each PDCA-cycle the customer re-engage to the process to redefine the customer value, validate the common understanding and adjust to the changing needs (Bell et al 2011, 214).

Establishing a culture that is nurturing sustained continuous improvement can be challenging, if a company has long traditions in holding people accountable with fixed price, scope and schedule projects. Continuous improvement requires moving away from broad-scope, big-bang projects lasting many months or years, as it is highly dependent on allowing the projects to use rapid project cycles. (Bell et al 2011, 216)

3.3.1 Constancy of purpose behind the improvement efforts

Sustained lean improvement requires adopting not only tools and practices, but engaging with the principles providing constancy of purpose – clarity of long term objectives. This “understanding of why” provides the solid foundation for continuous improvement, whereas tools and practices evolve in time, as depicted in Figure 11, Stages of Lean Transformation (Bell et al 2011, 32). Principles don’t mean only mission statements but are shared vision and sense of purpose by all employees aligning their choices in practice – the way things are done around here. The practices and tools are subject to constant improvement towards perfection, but always aligned with the constant principles the company has engaged to – even in more difficult times. (Bell et al 2011, 16 -17, 32)

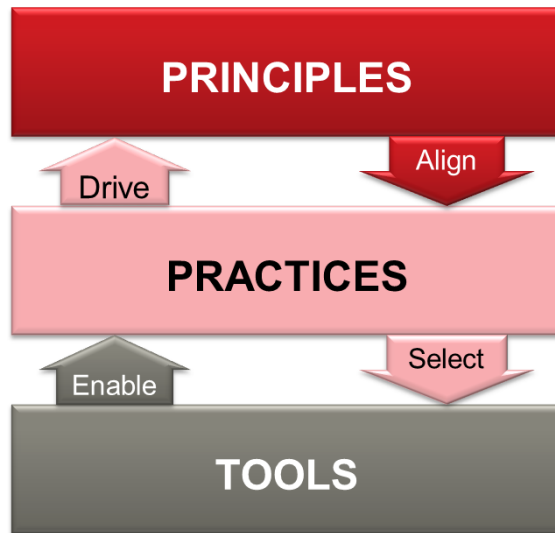


Figure 11, Stages of Lean Transformation (Bell et al 2011, 32)

In western lean implementation a common mistake is to only concentrate on the tools and practices and discard the basic focus on principles and how to provide value to customer. One such example is lean consultant David Manns praised book (4.5 / 5 customer review stars in amazon.com in 2016) *Creating a Lean Culture – Tools to Sustain Lean Conversions* (2010), which has taken lean tools and fitted them into traditional western governance without customer value focus, and the means become the goal. For example value adding activity is defined (272) as “anything necessary to transform material on the way to making a finished product.” How to determine what is necessary in the finished product aligned with long-term company goals is not mentioned by Mann at all. Missing the long-term orientation and constant purpose behind the improvement efforts is like training only runners’ physique for an orienteering competition. Difficulty in grasping these constant principles and customer value focus may be one of the most difficult areas in lean thinking in western culture.

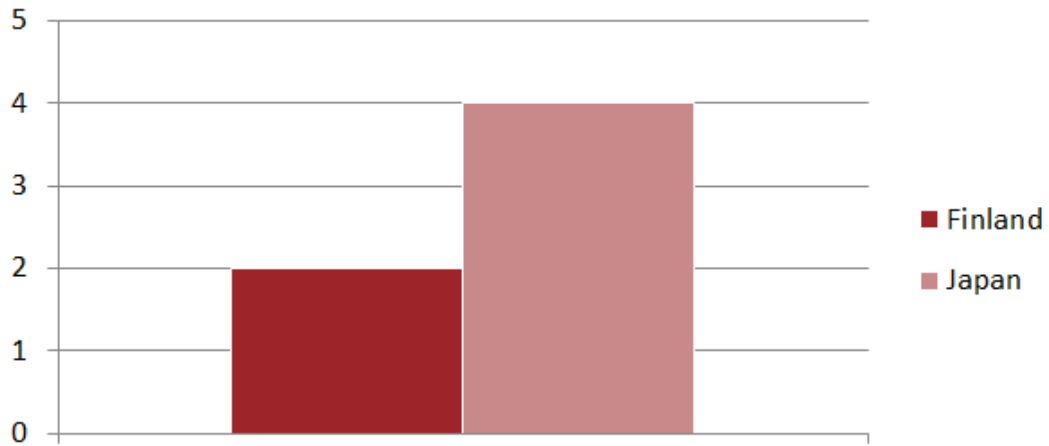


Figure 12, Relative Long-term Orientation, Geert Hofstede quoted by Poppendieck et al 2010, 189)

According to Hofstede's study from 2006 (Poppendieck et al 2010, 189), for example Finnish relative figure on long-term orientation is very low when comparing to the country of Lean origin, Japan, as depicted in the Figure 12, Relative Long-term Orientation. Long-term oriented people take a long-term view to their work, for example looking for profits in the next ten years or more instead of next quarter (Poppendieck et al 2010, 190). Avoiding repeating shifts in the purpose changing the direction of improvement efforts help avoiding waste in many organizations.

4 Lean Project Management

“Are we lean?”

“It’s impossible for me to say, because I wasn’t here yesterday.” Modig 2015 quoted one of the Toyota production system creators Obasán visiting a European company with lean aspirations.

As Project Management Institute (2016) defines it, project is a “temporary endeavour undertaken to create a unique product, service or result” and it’s being led by a project manager. Project management is defined as “application of knowledge, skills, tools, and techniques to project activities to meet the project requirements with a focus on the goals, resources and schedule of each project (2016).

The main differences between traditional and lean project management is that lean project management focuses on creating value to the project customers where traditional project management focuses on delivering agreed deliverables as seen in the Figure 13, Traditional vs Lean Project Management. Project management is lean when it focuses on customer value, iterative discovery, problem solving and waste elimination. Achieving this requires project manager most of all a good understanding on what the customer value is for this particular customer and project (Bell et al. 2012, 212).

	Traditional PM	Lean PM
Focus	Tactical execution	Strategic alignment & Customer Value
Daily Actions	Task Completion	Value Creation / Problem Solving
Customer Value Definition	Fixed	Evolving
Change / Risk Management	Initial analysis, then reactive	Continuous Improvement with PDCA, Proactive
Emphasis	Stability	Agility and Repeatibility

Figure 13, Traditional vs Lean Project Management (Bell et al 2011, 212)

Lean Project management is able to respond to change better than the traditional; it utilizes lean principles and tools to improve project agility and constant improvement to obtain a suitable balance between control and flexibility (Bell et al 2011, 205) Having too extensive planning, documentation and stakeholder signoffs can lead to project manager to

resist change and inhibit the iterative, continuous improvement process and team learning. When the end result is described in too detail and too early, concentrating on the root causes of customer problems is discarded as out-of-scope and the project easily ends up delivering waste instead of value. (Bell et al 2011, 204)

Traditionally project management has focused exclusively in producing the agreed deliverables of the project, but there is a high risk of missing the opportunity of improving the related processes, when the underlying problem is not fully investigated and understood. Projects need to be planned so, that they have enough space for creatively searching for new solutions to improve customer value to produce superior results; the distinction between improving and executing the work should be eliminated. (Bell et al 2011, 203)

In the following chapters 4.1, 4.2 and 4.3 the customer value is regarded per Prince2 project stage followed by the project management best practices in chapter 4.4 Best Practices for understanding customer value.

4.1 Customer Value in Pre-project and Project Initiation

According to Prince 2 Agile (Axelos 2015, 25) there are five stages in a project; Pre-project, Initiation Stage, Subsequent Delivery Stages, Final Delivery Stage and Post-Project. To avoid the common pitfall of focusing on individual tasks, features or techniques over customer value, lean project manager needs to pay attention to customer value throughout the project, as depicted in the Figure 14, Customer Value in Prince 2 Project Phases.

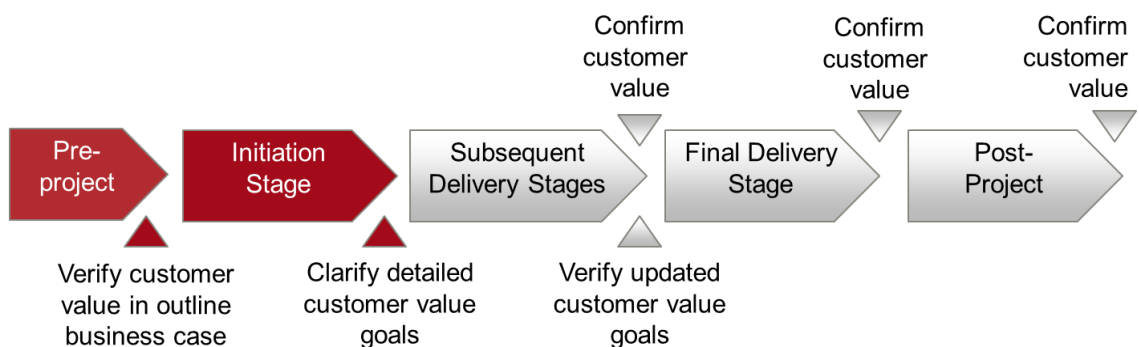


Figure 14, Customer Value in Prince 2 Project Phases (Axelos 2015, 63)

During Pre-project the project manager needs to verify that the customer value (in Prince2 terms known as benefit) is outlined in the business case (Axelos 2015, 63). Business case is a justification whether to start the project based on estimated costs against the expected customer value (257). It should outline how and when the customer value can be measured against the initial situation before the change is done (258).

Once the project enters the Initiation Stage the lean project manager establishes the project management strategies and plans the project phases and finally reviews the customer value in more detail. (Axelos 2015, 25). To gain comprehensive understanding on the customer value the project manager supports the customer to take a step back from the requirements and think over the needs, problems and expectations of the different customer groups with the area under development. (Bell et al 2011, 209) The project manager plans the customer value deliveries and selects the suitable indicators (controls) based on the project customer value expectations. This is written in a customer value review plan defining how to deliver customer value regularly and as early as possible. (Axelos 2015, 25 - 26).

4.1.1 Elaborating Goals with Customer and Team

Poppendieck et al 2010 (93) state, that in order to become brilliant in delivering value effectively, a domain experience of ten years is required in any complex domain. In relatively short-term project work this is not always possible. Lean IT practitioners commonly state, that involving the customer and the software development team at a more intimate communication is important at each project stage (Bell et al 2011, 2014). Only in a direct interaction between the customer and the project team there can be both customer value co-development and co-creation, where the customer influences on the development efforts and the team influences on the customer value creation by suggesting beneficial changes in customer usage processes and value creation, as depicted in Figure 15, Value Co-Creation in Customer – Team Dialogue (Grönroos 2011, 290).

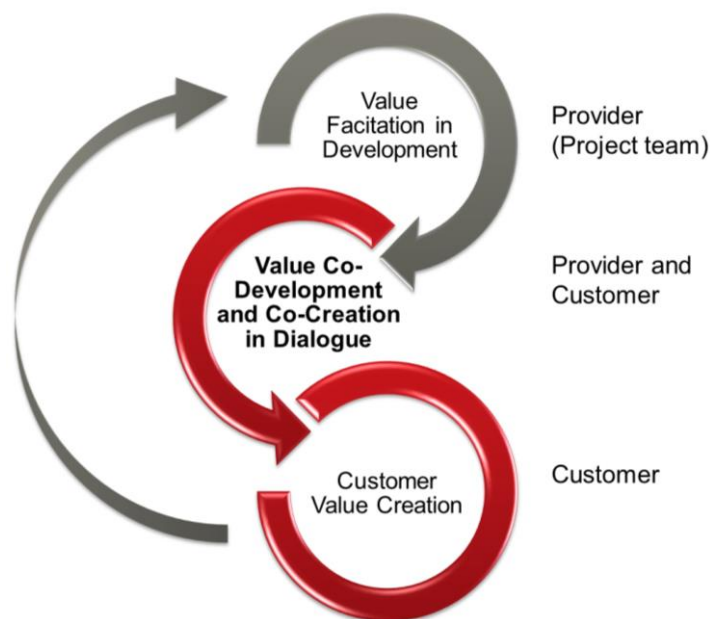


Figure 15, Value Co-Creation in Customer - Team Dialogue (Grönroos 2011, 290).

For example Poppendieck et al (2010, 31) recommend software development projects to obtain the necessary shared awareness of the customer value goals by getting the customer and software development team talking directly to one another, as development decisions actually are business decisions. This leads to better choices supporting customer business, and is called value co-creation (Grönroos 2011, 290). Transforming the customer needs into designing customer value requires a creative mind-set of a cross-functional team to imagine how people would want to use the product. The teams' passion and engagement built around these ideas will act as a driving force throughout the development flow if the same people get to work on the product from the beginning to the end (Poppendieck et al 2010, 36). Project manager and the whole project organization structure should support this two-way communication channel between the project team and the customer to enable proper root cause analysis leading to correct answers to the correct problems.

Hawkins (2011, 33-34) also experiences the teams are far too internally focused to be able to work effectively. He states that high-performing teams do not only have clear purpose, goals, roles and good internal relations, but they engage well with all its external stakeholders. Team needs to focus first on who the team is to serve and what those people need and want from the team. This undertaking starts with mapping the critical stakeholders – in lean terms customers - and prioritizing them and one or two team representatives interviewing those of the highest priority. The development team needs a clear view on customer value goals and awareness on customer expectations to be successful. In the Five Disciplines of High-Performing Teams Hawkins (2011, 36) lists that teams need

1. a given purpose and defined success criteria outside the team (Commissioning),
2. to internally clarify the purpose, goals, values, ways of working, roles and expectations to build engagement (Clarifying),
3. to assess if they are functioning well together as a team (Co-creating),
4. to engaging collectively and individually with the customer groups (Connecting) and
5. to reflect and develop their own performance, supporting team members and learning as a team (Learning) as depicted in Figure 16, The Five Disciplines of High-Performing Teams.

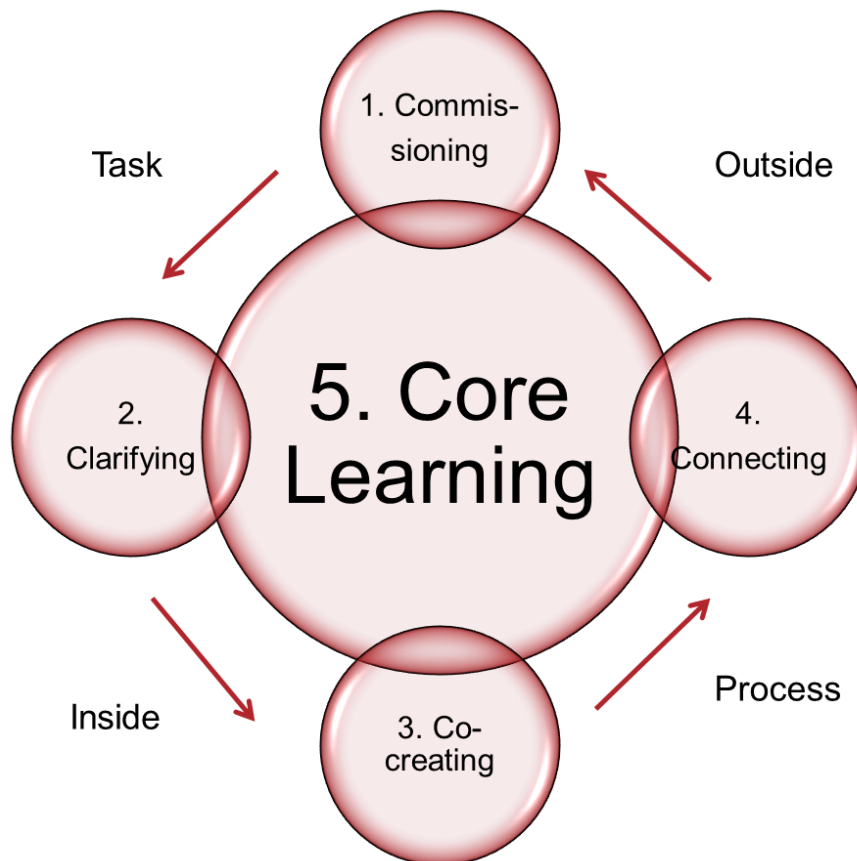


Figure 16, The Five Disciplines of High-Performing Teams (Hawkins 2011, 36)

With the commissioning discipline the team investigates the customer needs and wants, as well as the customers' customer wants. Commissioning and clarifying needs to happen in a dialogue between the team and the party ordering the work to make the purpose and goals of the team realistic and close the "aspiration-realism gap" along with limiting the scope and prioritizing the work clearly (Hawkins 2011, 39). When the clarified plans are put into action in co-creating phase, the team learns fast if the work is proceeding as anticipated, and if not, the goals need to be revisited again. This phase is full of exploration on how the win-win-win situation can be created serving the team, the critical customer groups and customer's customers. The direction of this exploration is guided by a good connection with the critical customer groups and success of the work is finally confirmed in the outside world – in a real production usage (37 -41). Only in this kind of situation with direct relations with the customer, the software development team is able to participate in the actual customer value creation (co-creation) bringing more value than what the customer was able to ask for (Grönroos 2011, 291).

All these activities described above lead to continuous cycle of team learning. The team's ability to learn, share and apply new knowledge is the most important source of company's competitive advantage (Gustavson et al 2014, 76). In lean terms the valuable learn-

ing improves the skills and abilities of fulfilling the customer value expectations in an effective way, making it clear why the close customer dialogue is essential to direct the learning towards the customer value producing way. It is easier to discover new knowledge than to diffuse the knowledge to the whole team (Gustavson 2014, 174). That's why team learning requires a team's joint reflection on done actions and their results – this practice is well known by software development teams as a retrospective meeting, which happens at the end of each iteration right after the results of the done work is evaluated together with the customer. (Poppendieck et al 2010, 173). Hawkins (2011, 42) suggests a wider perspective to this kind of meeting; instead of only focusing on the teams own actions the team should evaluate also the team functioning in their social environmental context; how well they've engaged with the critical customer groups. The main questions should focus outwards, "what patterns, behaviour, emotional engagements, assumptions, beliefs and mind-sets are helpful and which are getting in the way of us, as a team, to more successfully serve our stakeholders and thus achieve success?"

4.1.2 Indicators guide towards customer value delivery

High-performing teams consist of autonomous self-managing members, so each team member needs to have a good understanding of the value the team produces as well as the cost of the value producing process. This enables each team member to have a practical, business-driven perspective to make value-bringing and waste-avoiding decisions in their daily working life. (Gustavson 2014, 138) Early and frequent feedback from customer directly, without intermediates to those who are developing the system supports alignment by focusing everyone on customer outcomes (Poppendieck et al 2010, 228). If this is not possible, other ways to direct the customer value is needed.

The team's focus and contribution to its goals can be directed by the indicators used in measuring team performance (Gustavson et al 2014, 75). The team performance can be measured with different type of indicators within five categories, as depicted in the Figure 17, Team Performance Categories and Indicators. One important category to be measured during the subsequent delivery stages is customer value (Grönroos 2011, 283), directing the project team to work effectively towards customer value enabling solutions.

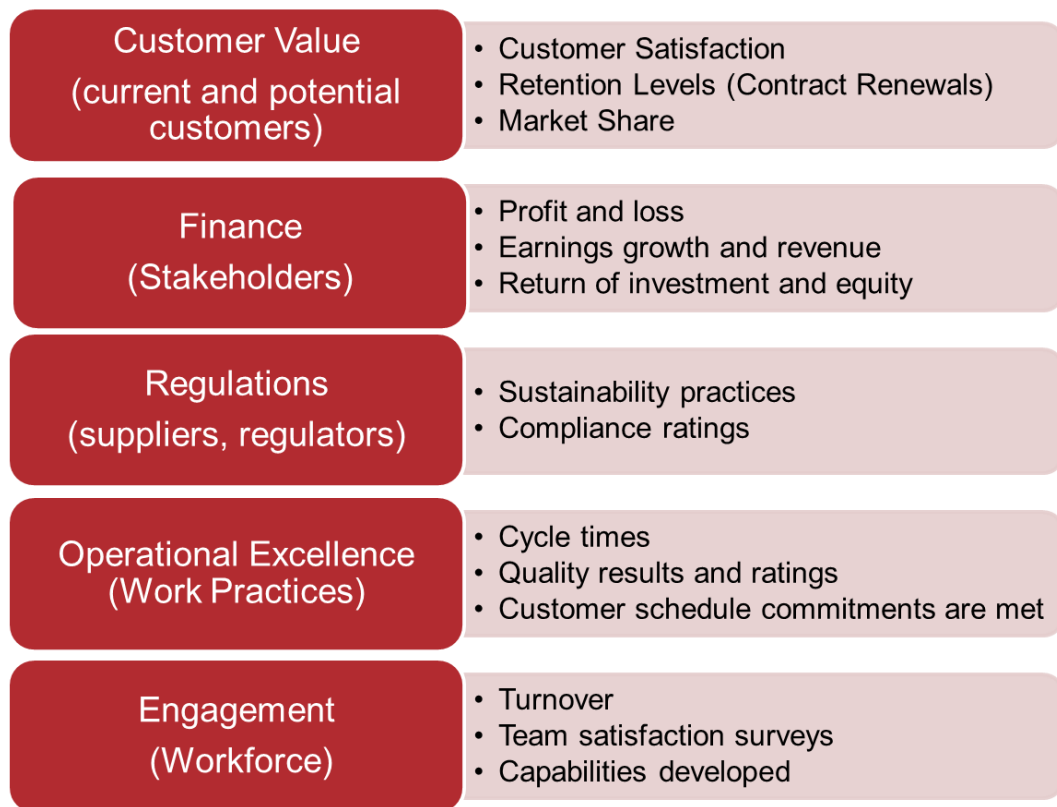


Figure 17, Team Performance Categories and Indicators (Gustavson et al 2014, 73).

Lean encourages the use of SMART indicators developed together with the software development team and the customer (Bell et al 2011, 219) - to know when the target is reached:

- Specific – measures only the wanted factor and nothing else.
- Measurable – objectiveness and clarity of the indicators.
- Achievable –possible to achieve during the project, by the project team.
- Relevant –aligned with project customer value goals and in the scope.
- Time-bound – measurements specified for a certain time frame and can be comparable in time, and measuring is not taking too much working time. (Bours, 2014)

Customer value is either subjectively perceived characteristic evaluated by the customer or objectively measurable characteristic of a product or service (Grönroos 2011, 283).

4.2 Customer Value in Subsequent Delivery Stages

As the customer value goals should be allowed to evolve during the project, the customer and the software development team is able to learn more on the customer value expecta-

tions and solution possibilities and adjust their actions based on this new knowledge. (Bell et al 2011, 209)

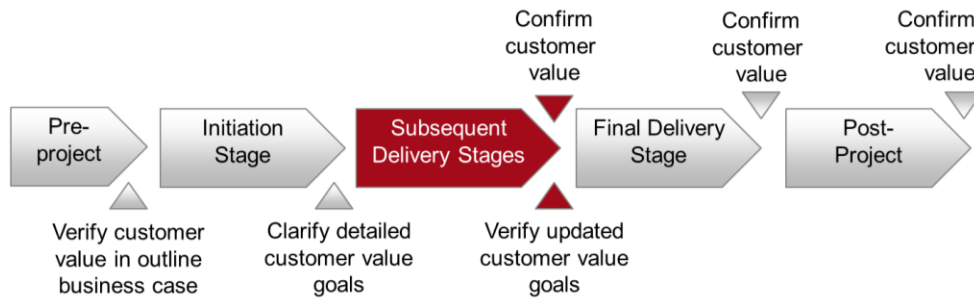


Figure 18, Prince 2, Subsequent Delivery Stages (Prince2 Agile 2015, 63)

Lean project manager concentrates on following up on customer value alignment with the selected customer value indicators. As soon as the information on the chosen customer value indicators is available, it should be shared with the lean project team to support sense of accomplishment or self-correction - sharing the information a month later is useless (Gustavson et al 2014, 142). Best way to share the vital information on the predominant situation is to use visual management, where the physical or virtual work space is used to send clear, inspiring and consistent data-driven messages to the whole team (184). Because skilful visual management helps the team focus on what is important, the chosen team performance is better when visual management is effectively used (199). The lean project team room (virtual or physical) walls should lead towards better collaboration, communication and fast PDCA improvement cycles with the walls covered by visual charts and graphs depicting for example

- project issues,
- problem solving situation
- actual progress vs the plan
- burn down status
- countermeasures
- and task management board (for example Kanban or scrum boards) (Bell et al 2011, 208).

According to Modig (2015) the vital information needs to be “one look away, not one click away” to have the wanted impact. Therefore visual management is most effective when it is implemented in a project room, where the people work daily adjacent with the people they cooperate with (Gustavson et al 2014, 203). Visual management utilizes whole brain approach (189), which is described in more detail in the chapter 3.2.1.3 Workshop methods.

The evolving customer value goals are supported by frequent delivery (Bell et al 2011, 219) and reviews and demonstrations where the done achievements are presented and discussed (Axelos 2015, 28). Project manager maintains these changes and supports efficient problem solving by using principles of PDCA cycles (Bell et al 2011, 219).

4.2.1 Managing High-Performing Project Teams

Self-managing project teams moving within well-defined boundaries respond easiest to the evolving customer goals (Axelos 2015, 27). Project team is a group of people with complementary skills, brought together for a specific time-limited task, and is often collected from different professional teams (Hawkins 2011, 106). The software development project team with collaboration of its customers is at the heart of producing customer value, and therefore lean principles of respecting the people and valuing team work are essential in successful projects (Hawkins 2011, 109). The team is project managers' most important tool in customer value goal fulfilment.

The project manager maintains the project purpose. The purpose of any lean project is to create customer value in a way that is serving company strategy and it is fulfilled by striving for fulfilling customer value goals. It is important, that the project manager makes sure project purpose is owned by the entire team, as the shared sense of purpose is the core of involving and unifying the most successful high-performing teams - people want to work for a meaning and a higher purpose (Gustavson & Liff 2014, 68).

Project teams can't work based on technical requirements only to be able to fulfil the customer value goals efficiently, or as Ficalora and Cohen describe (2009, Chapter 2.5.5 Good Communication of Customer Needs) "developing a subsystem by simply meeting a specification is a lot like driving a car without looking at the road." They clarify that the vast amount of small decisions made by individual project team member affects the end result significantly, and therefore development team needs a good understanding on customer value goals to be able to align those decisions accordingly. Writing code is a creative process, not translation work from requirements into code (Poppendieck et al 2010, 90). From the lean perspective the critical element enabling project success is the effective team engagement in root cause analysis and iterative problem solving, and therefore in the heart of lean project management skills are facilitation and effective team building (Bell et al 2011, 202, 207).

Shared awareness – in Lean terms Jidoka – is one major principle of Lean guiding direction for the improvement actions towards the main goal - delivering customer value (Modig et al 2013, 135, 139). Shared awareness requires a transparent organization, where each member of the organization has an overview of the goal and situation and holds a mandate to prevent, recognize and eliminate anything inhibiting, interfering or impairing the flow (Modig et al 2013, 143). Value-enabling team members need frequent and timely information on the progress it is making towards the value goals (Gustavson 2014, 141). Business life is moving towards gamesmanship, where the business can be seen as a game where the players need to know the rules, receive enough information to follow the action and finally an opportunity to win or lose (142). Project manager can act as a game steward to make sure these conditions are present.

Humble et al (2014, 113) see that the role of a software development project team is not only to fulfil the customer value goals; it is a team that design, build, and run software-based products and therefore act as an integral part of business. Each customer delivery done during Subsequent Delivery Stage is an opportunity to gather valuable customer feedback, and is necessary to guide the direction of continuous improvement of

1. System under development
2. Software development teams' technical capability
3. Software development teams' ability to align with customer value
4. And software development team's motivation (Poppendieck et al 2010, 143).

If the software development team gets the information whether or not their work was successful in fulfilling the customer value goals, it learns how to improve. Despite this fact, Poppendieck et al (2010, 146) have noticed, that many times the feedback doesn't reach the team for example because the team shouldn't be held responsible on what they can't control or selecting the indicators is too difficult. This leads to wasting the creative improvement force and leads people doing only what they're told and stop caring (146).

4.3 Customer Value in Final Delivery Stage and Post-Project

Project enables customer value creation, which can be noted only in customer production usage after end product delivery (Grönroos 2011, 282). When the project has come to the final delivery stage, it is time to estimate if the project has been successful not only in terms of completing the project as planned, but more importantly fulfilling the customer value expectations defined in the beginning and during of the project. Even if there were complications in the project, the customer is likely to be satisfied if the expected customer value was successfully reached. (Axelos 2015, 303) The project manager needs to ensure

that the intended customer value is delivered to the customer; that the delivered products can be used the wanted way as a whole. The chosen customer value indicators are measured once again to compare the changed evaluations against the baseline. (Axelos 2015, 29)

The project manager plans the Post-Project activities as well in the Final Delivery Stage, as success in delivering real customer value can only be assessed after the product has been in production use (Axelos 2015, 29).

4.4 Best Practices for understanding customer value

According to definition of Michael English and William Baker the best practices “fully satisfies customers, produces superior results in one operation, performs as reliably as any alternative, and can be adopted elsewhere.” (Bell et al 2011, 82).

Best Practices documentation aim to document tacit knowledge of the workers to be able to standardize work, which is one of lean principles and a precondition to consistent improvement. When such tacit process and practice knowledge is stabilized, standardized, documented and shared with others continuous improvement and measuring it can be started. (Bell et al 2011, 82).

The practices described below can be utilized both in internal improvement efforts as well as using them to support the customer in the beginning and during a software development project.

4.4.1 Gathering information on the improvement areas

As the PDCA –cycle in Chapter 3.3 showed, all improvement starts with identifying the areas for improvement, which can be done using gemba walks, interviews, customer data analysis and queries, root cause analyzing workshops with five whys, cause-and-effect diagram or pareto-analysis.

Identifying the problematic area can be done using *gemba*. *Gemba* means a real place, where the action is – leaving the comfort of the meeting room and going where the work is done. This needs to be followed by *Gembutsu* – analyzing the relevant information surrounding the area for improvement or a problem. This can be done by interviewing employees in an encouraging way, where the focus is on resolving the problem, not blaming anyone. (Charron et al 2015, 288 - 289) *Gemba* should be used also in verifying the results where the software user is doing the work and creates the actual customer value

(Bell et al 2011, 214). Bell et al suggest also, that the teams should regularly go to the gemba on the customers' site throughout the project to validate facts and develop deeper levels of understanding on the customers circumstances, important daily operations and the encountered problems. However, if the customer is located far from the software development team, this may be impractical, or the customer may not want to grant access to the premises for the software project team, the team needs to develop other ways of staying close to the customer. (214)

Identifying areas for improvement can be done also by using a more process-oriented way using for example Value Stream Mapping or SIPOC –analysis. With lean approach the improvement starts often with going through the current, realistic processes depicting the way things are really done in order to identify the most beneficial areas for improvement. One way to evaluate the customer value providing end-to-end process is to draw a value stream map, which helps in identifying the real value creating activities as well as the wasteful activities and the reasons wasteful activities are in place. The value stream mapping illustrates the time spent adding value (value adding time) and time spent on waste (non-value adding time). Especially the transitions between departments and work phases are common sources of waste in the end-to-end value stream. (Poppendieck et al 2010, 19).

Value adding time, VA, is activity required to deliver the product or service to the customer, and non-value adding time, NVA, is the activity not required to deliver the product or service to the customer. Classifying the activity types depends on the organization and its strategy and customer needs. (Charron et al. 2015, 245).

Value stream refers to all the done value and waste adding activities in producing perceived customer value – the complete, realistic flow from placing the order to delivering the order (Charron et al. 2015, 247). The value stream is often depicted in Value Stream Map; first the processes in scope is agreed, then the realistic situation is depicted to identify value adding in current-state map as well as non-value adding activities to be removed. Based on this information the aspired state can be depicted in future-state map and finally the implementation of the changes is planned (Oakland 2014, 312, 316).

There have been some case studies with critique on value stream maps applicability to software development projects, as it's not at its best in visualising information flows and analysing cyclical and unique undertakings to produce complex products or services, which are divided into smaller parts throughout the value stream (for example Dahlman & Olsson 2014, 72). Instead of applying the tool in software development, the tool would be

in better use for measuring customer processes to be optimized before involving software development.

4.4.2 Workshop Methods in Continuous Improvement

Workshop is a result-oriented forum used for spreading skills and knowledge around a specific topic or issue, and it uses variety of activities during one session; it can include teaching and coaching, discussions and practical exercises. (Sims 2006, 20). Workshops can be used in all team learning and problem solving throughout the project, because it engages people in the learning situation and the participants can influence the problem solving during the meeting to make the solutions more effective in the real life situations. Workshop is interactive by nature which makes it easier to apply established theory with real life challenges. (Sims 2006, 36). Workshops can be used in software development projects for defining customer value goals, requirements or for technical analysis in the beginning of a project in a customer dialogue, making the customer value co-creation possible and the project more efficient in providing customer value enabling solutions.

The workshop is more effective with multi-channel learning, which uses all the learning channels to engage both sides of the brain with reasoning, sound, vision and physicality (Sims 2006, 41), as depicted in the Figure 19, Whole Brain Approach. First of all the workshop should support the participants own reasoning to realize why something is important by discussion and facilitate real-life problem solving. Graphs, diagrams, flowcharts and smart use of colours intrigue visual side of participants, and discussion and explanations the auditory side of participants. Walking in the workshop room, drawing, writing and other physical movement support the learning as well. (Sims 2006, 41-42)

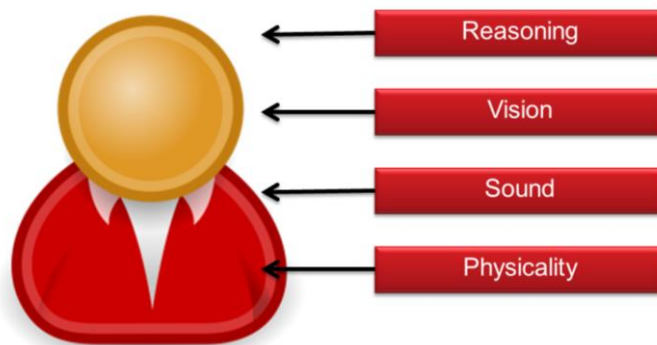


Figure 19, Whole Brain Approach (Sims 2006, 41)

Using these different methods makes the session more interesting and engaging, and also makes the learning easier and long-term – enjoyable sessions are more effective

(Sims 2006, 37-38). Maintaining a positive solution-focused approach leads to better results than a problem focused approach (Hawkins 2011, 199).

There are different exercises to use in a workshop to make the session productive and well organized; for example brainstorming, voting, Ishikawa (cause-and-effect) diagram, Pareto analysis, three-way-sort and experimenting. Brainstorming is used for bringing forth individual ideas of the participants and organizing those ideas into readable and usable form. Brainstorming brings more aspects to the topic at hand and improves participant equality and engagement. (Arveson 1996a, 2). First of all the atmosphere needs to be free of criticism at this stage to encourage the participants to try even far out ideas. Also the brainstorming question needs to be stated clearly and also visible to all participants to get back to when necessary (4). In researchers own experience the brainstorming gets the best results – a variety of viewpoints and the shy ones participating well – when the participants spend a specified amount of minutes in quiet, writing down their own ideas one per piece of paper. Facilitator is the time-keeper, and when the time is up, depending on the groups wishes, the ideas are shared to others and grouped by the facilitator or the participants themselves, and only at this point discussion is allowed to reach correct understanding on the ideas. A useful method to prioritize these ideas is using open voting, where the participants are allowed to use a certain number of votes on ideas that are most important to them. Brainstorming can be used to create input for other tools, such as Ishikawa diagram (also known as cause-and-effect diagram and fishbone diagram). (Arveson 1996a, 2)

Ishikawa diagram is used in root cause analysis, as it uncovers the root causes and their interconnections and presents them in a diagram (Figure 20) to find the right improvement actions to take (Arveson 1996b, 2). First the effect –positive objective or negative problem - is defined together with an operational definition to make it more understandable to everyone. The workshop facilitator can use brainstorming to find a useful variety of causes to put in the diagram or alternatively use common categories such as team, leader, entry criteria and exit criteria (Poppendieck et al 2010, 179), or policies, procedures, people and plant (Arveson 1996b, 6).

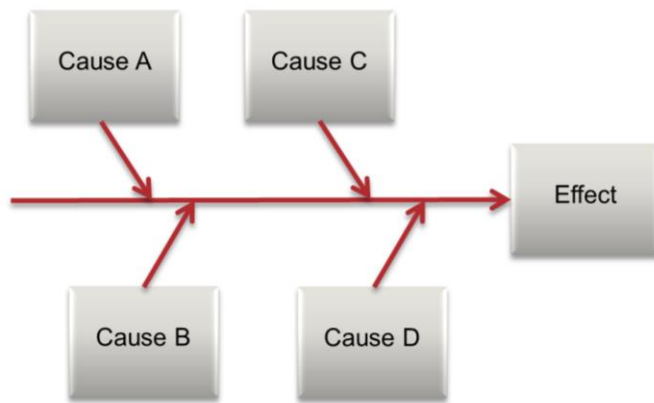


Figure 20, Ishikawa Diagram (Arveson 1996b, 5)

To drill down into the actual root cause instead of a symptom, the facilitator can use 5 whys –technique. Once a cause is identified, the facilitator asks why the situation is such, and repeats it five times, and moderates the conversation not to go astray or into blaming others, but to finding the actual reason behind the cause, which should be addressed to make an improvement. (Poppendieck et al 2010, 178-179).

Using Ishikawa diagram follows the Plan-Do-Check-Act cycle, when used in guiding improvement actions. Once all the root causes have been identified, the team lists experiments to attempt fixing the issue (in Planning phase). The small experiments are done and analysed whether the attempt was a success or not (Do and Check). The Ishikawa diagram needs to be updated once the done experiments give valuable information on the issue and the useful and unuseful countermeasures (Act) (Poppendieck et al 2010, 179).

Pareto principle can also be used in Planning Phase of PDCA cycle, as it states that a small number of causes are the reason to the majority of problems, and Pareto analysis reveals these most productive areas to focus on by reflecting the frequency or impact of the event or problem, their causes and contributors in a bar diagram (Arveson 1996c, 2). This tool can be useful in understanding and prioritizing the customer value needs, in solution design as well as in root cause analysis in all problem-solving throughout the pro-

ject, as depicted in the Figure 21, Pareto Chart Example.

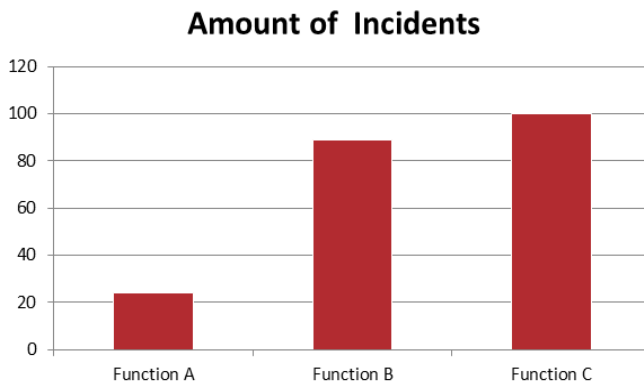


Figure 21, Pareto Chart Example

Three-way sort organises the ideas of a workshop team into committed actions to be tried quickly to gain momentum and to avoid “analysis paralysis” where the topic at hand is only analysed but no actions are taken (Hawkins 2011, 78). Hawkins (78) instructs, that the workshop team is divided into three groups, and each gather around one topic to brainstorm

1. What we need to hold onto and build upon?
2. What we need to stop doing?
3. What we need to start doing?

After five minutes of answering one questions per each group, they move onto the next question not to remove anything but to add new and specify the existing answers, with a goal to have concrete actions as a result. For example if there is communication on the board, the next team can specify with communication by whom and about what, in what forum? Once five minutes is passed again, the groups move onto the yet unvisited question and repeats the specifying tasks there. Finally the groups return to their initial questions to go through and prioritize the action proposals (or let everyone vote for the most important ones). The most important actions are planned to be done in a specified near future accompanied with the workshop team committing to the tasks. (Hawkins 2011, 79)

4.4.3 Clarifying Vague Customer Value Expectations

Customer value expectations need to be transformed into clear customer value goals to make it a measurable and useful characteristic improving software development project work. This can be done for example by using a methodology called Quality Function Deployment (QFD), which is a design management approach to transform expectations into clear goals with indicators to measure how the goals are fulfilled (Oakland 2014, 94). The main purpose of QFD is to help product developers to deploy voice of the customer as

well as employee and owner needs into organizational development and design activities with a systematic method (Ficalora et al., 2009, Chapter 2.1 The Challenge to the Organization). QFD is used as a team effort, as the change may concern many different roles and groups that need to be heard. To align the decisions with both customer and business needs, both the customer and business representatives need to be in the QFD-team. Where the product development involves also process changes, voice of the employees need to be heard, and where there are technical decisions to be made, the technical professionals need to couple with the marketing representatives, as depicted in Figure 22, Cross-Functional QFD Team. (Ficalora et al., 2009, Chapter 1.4 What Is QFD Being Used for Today?)



Figure 22, Cross-Functional QFD Team.

Using QFD has many benefits to any product development projects. The team work emphasizing nature of QFD improves adequate customer need understanding, communication of the customer needs, the team work alignment accordingly and overall communication between the QFD participants. The time spent in using QFD is paid back in later phases as it reduces the time to produce new products and implementation errors and improves well-informed decision making (Ficalora et al., 2009, Chapter 2. How QFD Fits in the Organization). It also alleviates the challenges in adjusting to market shifts. First of all it reduces the need to make midcourse changes such as changes in priorities or key

technologies, and if such changes are still necessary, they are more easily evaluated with all the previously made decisions and stakeholder needs. (Ficalora et al., 2009, Chapter 2.4 Dealing with Market Shifts and Cycle-Time Reduction)

To make the product well-suited in use and in customer value creation, the customer needs have to be captured, analysed and prioritized, as depicted in the Figure 23, QFD Front End.

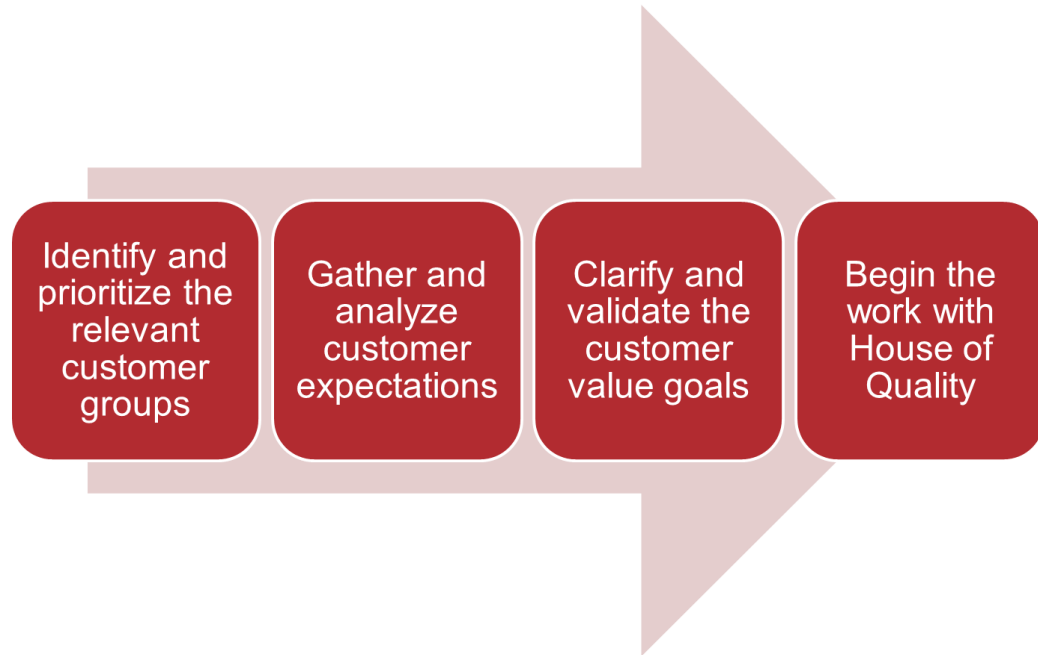


Figure 23, QFD Front End (Ficalora et al, 2009, Chapter 3.1.2)

Once the QFD front end tasks are accomplished, the work with House of Quality can be started, which is many time the only matrix filled in by the QFD team (Ficalora et al., 2009 Chapter 5, Overview of the House of Quality). As depicted in the Figure 24, Traditional House of Quality (Ficalora et al. 2009, Chapter 5.1), the first step of House of Quality is to fill in the customer value goals with their priorities in a well elaborated form (Chapter 5.1.1). Second and the most important step is to design the product characteristics which answer to the customer expectations and fulfill the customer value goals as well as the business needs. QFD team can choose to consider only the highest ranking customer value goals to reduce the work load. (Chapter 5.1.2) Third task is to select and prioritize the technical responses to the product characteristics described in the step two. Typically these technical responses are written as metrics, features or requirements. (Chapter 5.1.3) Fourth task is to evaluate how well that technical response reflects the customer value goal (Chapter 5.1.4).

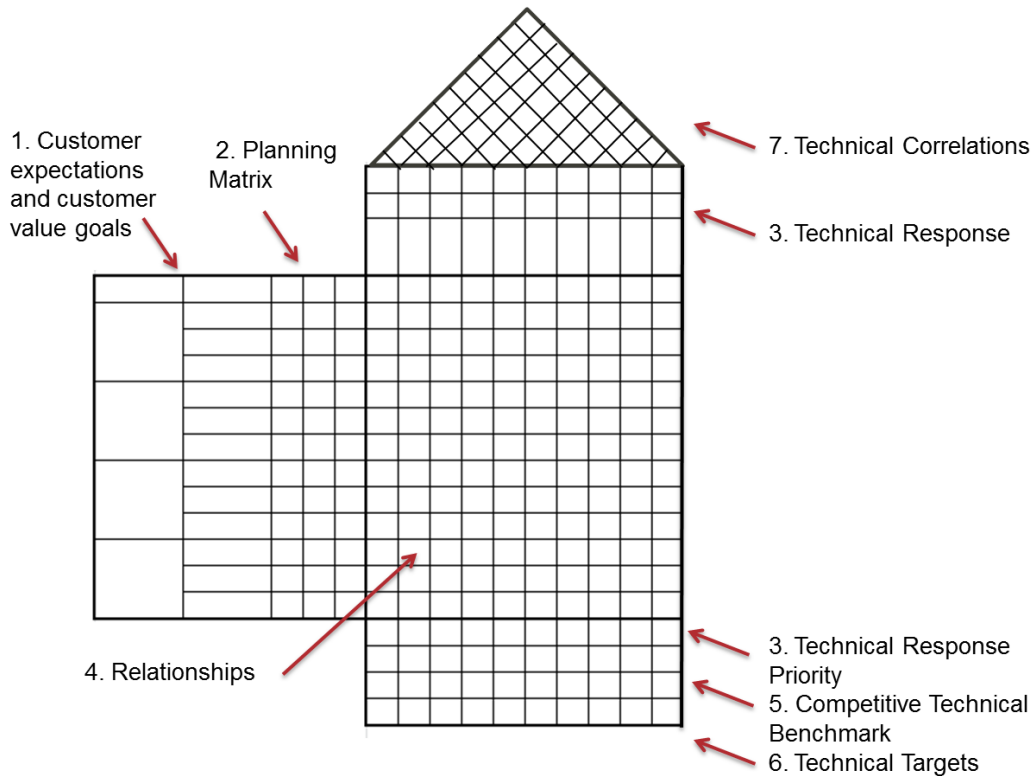


Figure 24, Traditional House of Quality (Ficalora et al. 2009, Chapter 5.1)

Some QFD teams may consider the House of Quality ready at this point, but some find it useful to continue to filling in the rest of the matrix; competitive technical benchmarking (step 5), technical targets (step 6) and technical correlations (step 7). Technical correlations describe whether the technical responses support or weaken each other and helps identify the bottlenecks and areas for collaboration and good communication in the implementation work (Ficalora et al 2009, Chapter 5.1.7). House of Quality is a tool to be adapted by each QFD teams unique needs (Chapter 5.2).

As a result the QFD team has a well elaborated matrix having it clearly described, what the customer value goals are, how they are planned to be met in this particular product, as well as all participants understand why these decisions were made and how their implementation can be followed up on.

5 Research Design

This research is an action research having a multi-method approach, mainly a qualitative, constructivist approach, as it analyses peoples' perceptions on main challenges in concentrating on value adding work and looking jointly with different stakeholders for suitable working methods that software development project managers can use to support better customer value fulfillment.

This research is descriptive by nature; it aims to understand what the current challenges are in facing customer value in projects and how can the project management practices be enhanced to obtain a more lean approach to better understand customer value and produce products which enable customer value fulfillment in customer use. This research follows mainly Plan-Do-Check-Act Cycle in conducting change (Figure 25. Research Process).

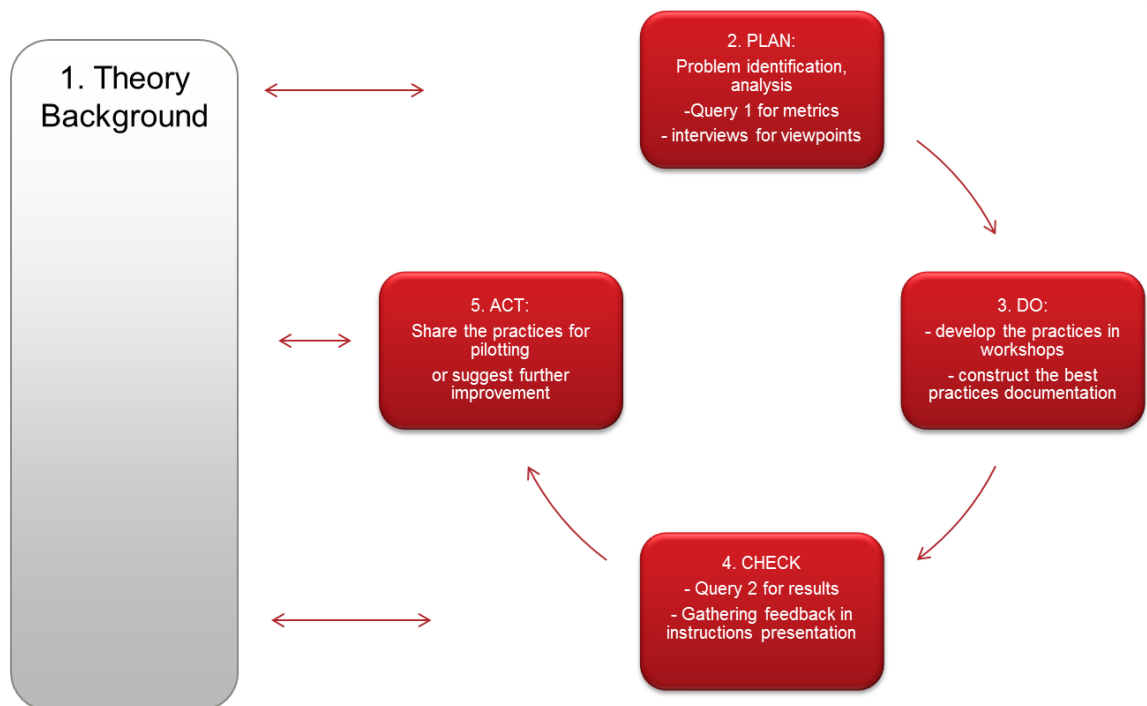


Figure 25, Research Process

One guiding rule for this research is to conduct the empiric research in close collaboration with Fujitsu stakeholders and especially with Fujitsu software development project managers in order to evolve the scope to better suit the real world challenges and to better engage the project managers in the change process.

5.1 Planning of actions and Baseline Construction

The empiric part of the research begun in September 2015 and was finished in March 2016 starting with baseline data construction and analysis. It was done by using interviews, workshops and queries. The interviews were semi-structured in order to let each interviewee to speak his mind freely of his perceptions on what the current situation is and where the upcoming enhancement actions would be most effective. The interviewees are selected based on management suggestions to reach the most outspoken and experienced people, and they are selected to cover different roles to obtain data triangulation and research validity (Thomas, 2004, p 131), at least two of each role to be able to handle the answers anonymously if wanted;

The researcher interviews lean consultants on 11.9.2015 and six ICT professionals working in different projects on 9.10.2015 and 16.10.2015;

- Virva Patomo, Lead Consultant
- Sami Säisä, Lean Consultant
- Paula-Maiju Rikkinen, Lean Consultant
- Juuso Sohlo, Test Manager
- Tomi Cederqvist, Test Manager
- Mika Holopainen, Technical Architect
- Tapani Alhosaari, System Architect
- Henrik Rosas, System Architect
- and Mason Batley, Customer Solution Architect.

The interviews are recorded on an audio to allow researcher concentrating on the interviewee instead of writing notes. The interview was based on semi-structured with open questions and themes to use as basis of the interview, which can be found in the Appendix 5. Each interview lasted approximately one hour.

As this research concentrates in project managers' practice improvement, it requires engagement of project managers, and therefore the chosen method to obtain this is to conduct workshops with them. Workshops are utilized from the beginning of the research starting from planning the scope in detail with the workshop team to better reflect the real, current working life needs and to gain commitment and motivation (Sims 2006, 124). The project managers' point of view in assessed the situation by classifying the main areas to concentrate on in the action phase. Workshop group consists of around 6 preselected project managers and their supervisor Timo Haavisto and director of program and project management Topi Caselius.

The indicators of the study goals are measured before and after actions. This is done with a query done with Webropol, quantifying Fujitsu Project Managers' familiarity and appreciation of Lean practices supporting customer value understanding and alignment. The constructed data (Appendix 6) is analyzed to form a comprehensive view of the current and resulting situation in Fujitsu project work. Analyzing the constructed data follows Diltheys hermeneutic circle (Thomas, p. 219); the conceptions and the interpretation of the whole is constantly revised by getting to know more of its parts. This leads to the most probably right interpretation of the suitable selection of practices to understand and enable customer value in projects.

5.2 Doing; Promoting Change

With the baseline information analyzed by the researcher, the researcher focuses on collecting the best practices documentation to address the main challenges by discussing and experimenting the principles and practices with the workshop teams.

5.2.1 Done Workshops

In this research three more workshops are conducted after the planning workshop with mainly the same participants consisting of project managers accompanied by their supervisor Timo Haavisto and director of program and project management Topi Caselius, and visiting workshop members when necessary. The workshops aim to address the important topics in current Fujitsu lean project management and to test the ideas for best practice instructions. Each workshop lasts 2,5 hours, with less than an hour of topic initiation and the rest of the time was spent in discussions and experimenting. The chosen workshop approach uses facilitating and coaching styles, where the learning is based on two sources; the facilitators orientation and coaching to the topic based on related theory and the workshop participants experience in different types of customer projects. All the workshops are designed to have a positive atmosphere, clear set of expectations answering the important questions to project managers, to use multi-channels in learning (Sims 2006, 41), and the experience is reinforced by hands-on experiments every time to make the workshop members motivated and able to reach the set targets. (Sims 2006, 4-5)

In the first workshop the facilitator / researcher uses brainstorming, voting and Ishikawa (cause-and-effect) diagram in identifying the causes of lack of customer value utilizing in projects. This way the empirical part of the research can be delimited based on project managers' needs, and a needed engagement is reached among the workshop participants.

The second workshop is facilitated by researcher together with lead consultant Virva Patomo and concentrates on experimenting Quality Function Deployment methodology to assess if it would be useful in addressing the first issue of project managers need for a systematic way in agreeing what the customer value is and transforming customer value expectations into clear customer value goals to be used in a project.

The third workshop handle the need to avoid over-design, where the solutions are fancier or more complicated than needed by the customer. The workshop group work on a Three Way Sort-Exercise (Hawkins 2011, 78-80) together with two architects invited to the meeting in order to figure out which principles to start, to keep and build upon, and which should be avoided by project managers.

The fourth and last workshop concentrates on emphasizing the importance of sharing the customer value goals with the project team and making the customer value indicators more SMART (specific, measurable, achievable, relevant and time-bound) to be used in customer value ensuring and in all customer and project team communication. The exercise utilizes project managers own current projects in elaborating the customer value goals to be more clear and usable making it easier for project managers to adopt the learnings in their daily work.

5.3 Target Assessment

Once the most important areas of lean project management are handled in the workshops and the researcher constructs a Fujitsu Project Management Best Practices document based on the workshop results and they are presented to all software development project managers.

After a short time to get introduced with the new practices, the questionnaire of lean practice usage is conducted again. Taking the practices into use is visible only over a longer period of time, and therefore the project managers' first impression of how useful the practices are in their opinion is assessed during the timespan of this research.

5.4 Acting upon the results

If the feedback from director of program and project management Topi Caselius and the Query 2 (Appendix 6.2) results are promising, the instructions are agreed to be piloted later in a customer project and shared with Fujitsu Nordic to be applied more widely as Fujitsu Lean Project Management. If the results show that the done actions were not seen valuable by project managers, a suggestion for further study and improvement is formed.

6 Empiric Research Baseline Summary

“Be the change you wish to see.”

(Mahatma Gandhi quoted by Bell et al. 2011, 19)

The baseline data was constructed during Autumn 2015 to analyse current situation on how the understanding on customer value is formed and how the in Fujitsu software development projects ensure customer value alignment. The baseline assessment was done in many ways to ensure a rich, qualitative view on the situation. It was assessed by conducting a query with project managers (Query 1, 2015) and getting lean consultants and project team viewpoint with interviewing Fujitsu lean consultants and a small set of test managers and architects. Also project managers' view on current situation was handled in the workshops conducted during fall 2015.

The scope was refined in the first project manager workshop by gathering each participant's viewpoints of the topic, and the most important areas for improvement to start with were voted to be:

1. Unconscious customer value expectations should be refined into specific goals in a software development project.
2. Sharing the customer value understanding better with the project team.
3. Having customer value driven improvement before technologically driven improvement. (Workshop Team 1, 2015)

These above mentioned three improvement areas act as focus points in analysing baseline in Appendix 2, Secret, Findings from Baseline Data Construction on Fujitsu Project Management, which is Fujitsu restricted. Identifying the improvement actions to be taken are described in the next Chapter 7, Improvement Efforts, but the actual developed best practices documentation is presented in Appendix 3, Secret, Best Practices Documentation for Understanding and Ensuring Customer Value in Projects. Analysing the effectiveness of done actions is analysed in detail Appendix 4, Secret, Improvement Results. The results are discussed in Chapter 8, Conclusions.

7 Improvement efforts

This chapter justifies and explains the done decisions and content of the Best Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects (In Restricted Availability Appendix 3).

The main focus in improving customer value alignment in software development projects was to improve project managers' understanding on what customer value is as a concept and provide practices to clarify the unique customer value goals for each project (more on the matter in Chapter 7.1, Improving Customer Value Goals.). Lower priority goals are to provide practices for project managers to be able to share the customer value understanding with the development team (Chapter 7.2, Improving Shared Customer Value Understanding) and to follow up on the customer value alignment during and after the project to enable continuous improvement supporting customer value goals (Chapter 7.3 Improving Customer Value Driven Improvement). The practices implementing these selected improvement efforts are gathered into a Fujitsu Restricted Appendix 3, Best Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects.

7.1 Improving Customer Value Goals

The project managers have to understand the concept of customer value to be able to place and utilize customer value goals effectively in their software development projects. During the actions within this research, the concept is clarified within the workshop team meetings and in two presentations held in software project manager monthly meetings by the researcher. The customer value concept was explained with examples also in the Best Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects.

As the baseline analysis noted, the project managers' customer domain familiarity supports customer value alignment in the project, but it is not possible at all cases, so there needs to be a systematic way to build up the customer value understanding in the beginning of each project. The customer value needs to move from the background to the front-line with clear goal setting to support all decision making later on during the project.

Despite the strong usage of workshops (Query 1, 2015) in the beginning of the current software development projects there are no systematic practice to define customer value, instead they focus on the detailed requirements and features the project needs to fulfill (Workshop Team 2, 2015). This research suggests that successful alignment with cus-

customer value goals is more easily reached with a systematic method to define the customer value goals and their indicators during these workshops. This includes especially discussion on the reasoning behind the requirements – why the feature is necessary and what benefit do they bring to certain customer groups. The workshop Team 4 (2015) identified many practices supporting customer value understanding, where the following suggestions are put into the Best Practices Documentation:

1. Quality Function Deployment and the tool House of Quality
2. Interviewing customer business representatives
3. Having customer value workshops.
4. An unspecified practice to support project manager to have a more courageous attitude to go and discuss the customer value issues with the customer and several different actors in the customer business;” what do you use this for, and what is important to you?”

The rest of the suggestions are not included in the Best Practices Documentation, because they do not fit the scope of this research or are not applicable in current Fujitsu software development projects (Workshop Team 4, 2015):

1. Analyzing customer orders
2. Analyzing customer processes for example in a workshop
3. Shifting the viewpoints of the development team members; having developers doing exploratory testing days improves the quality thinking and different type of bugs can be found.
4. Creating a new role of Business Consultant to handle long-term customer relations to make innovative suggestions to customer.
5. Co-creation, designing the end product experimentally with prototypes together with the customer business representatives, not having heavy definition phase.

To be able to bring customer value driven focus into these early project workshops, this research resulted in suggesting practices based on Quality Function Deployment adjusted with Fujitsu main project management method Prince2 to handle and define the customer value expectations in such a way that the customer value goals are usable in guiding the software development work and measurable to ensure the customer value alignment during and after the project. The practices of Quality Function Deployment (QFD) were presented by the researcher and Fujitsu Lead Consultant Virva Patomo, and the related tool House of Quality was experimented by the Workshop Team 2 (2015). As a result, the Workshop Team 2 (2015) suggested, that this would be a beneficial practice to be adopted by Fujitsu software development projects, and it was decided to be added in the Best

Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects.

7.2 Improving shared customer value understanding

How would the customer value understanding spread throughout the project team most effectively? The Workshop Team 4 (2015) identified project managers' need to aim for better customer domain familiarity and customer value understanding and avoid keeping only to an administrative role in the project. This domain knowledge builds up robust, if the project manager is able to concentrate on the same customer domain for a longer period of time. Project managers' work with customer value needs to be done in a close cooperation with the architect to gain best results. Only when the customer value goals are agreed and these key people understand the customer value of the project, the knowledge can be spread to the project team on a higher level of detail. (Workshop Team 4, 2015).

Based on the theory background, Query 1 (2015) and software development team interviews (2015), involving the team in the customer communication would be the most obvious solution to improve the shared customer value understanding. Therefore it was initially suggested as one lean principle in the Best Practices Documentation in a following way (as suggested by Humble et al 2014, 109 – 110):

“Support project team autonomy and their communication with customer and support their own decision making to achieve program-level outcomes. Their scientific work towards goals leads to identifying and removing waste.”

This suggestion was rejected by director of program and project management Topi Caselius (2016), because it doesn't fit well Fujitsu organization culture and the way projects are steered; project manager has often very exact specification what they can decide and what not, so the team and project manager has only a limited authorization of making decisions. For example project manager doesn't have a mandate to ignore steering group decisions, agreed project scope or project resourcing. Therefore the practices need to rely on other practices supporting the ways project manager can share customer value understanding with the project team.

Main method in clarifying the message to the project team was identified to be QFD. The Workshop Team 2 (2015) noted, that Quality Function Deployment and House of Quality matrix provide a way to share the customer value understanding with the project team, as the House of Quality can be presented to them after it's finished with the customer. It would give an answer on why the project exists and what is the priority between the project tasks.

There is a selection of activities supporting teams' customer value understanding, which can be done already in Pre-project stage (Workshop Team 4, 2015); the knowledge transfer from the sales to project manager needs to be done properly to avoid losing data on customers' reasons why the project is started, so the project manager as well as the architects and test managers can understand the initial customer value expectations. This is added in the Pre-Project activities in the Fujitsu Restricted Appendix xx, Best Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects.

The Workshop Team 4 (2015) recognizes many different forums, where the customer value goals could be shared with the development team:

1. In customer kick-off or at least internal kick-off handling why the project is done and what the customer value goals are.
2. Handling customer value goals (sharing the customer reasoning why something is done) in weekly team meetings, not only describing the features to be done.
3. Having the key team members in the customer meetings as much as possible and the key members in turn are responsible of sharing their understanding with the rest of the team. For example when demoing the results to the customer and end users in review meeting, the development team should join the meeting to gain knowledge.
4. Justifying the feature and task priorities with customer value in task delegation.
5. Sharing details on customer value and feature usage when discussing with a team member one-to-one.

Project manager needs to understand how to share the customer value information in an understandable way. The Workshop Team 4 (2015) identified factors to consider in obtaining good customer value communication between project manager and the team. First of all a good summary on project customer value goals makes it simple to understand and easy to engage to in the beginning of the project, only the architect is in responsibility of understanding the customer value on a very detailed level. When going through the specifications with the team, the project manager can bring the customer need viewpoint up to justify why the customer needs the specific feature. This kind of customer value respecting way of presenting specifications supports also the teams' autonomous efforts in grasping the customer value. During the project the customer value goals direct the change decisions done in the board, and these decisions are shared with the team with the related reasons. (Workshop Team 4, 2015)

Based on the interviews it seems, that the beginning of a project is relatively well handled, and also the customer understands the importance of participating in the requirements

analysis workshops. The challenge is more in keeping the customer value under discussion during the project, as there always are grey areas to confirm from customer and correct operative parties. Therefore the best practices documentation stresses the importance of having customer value mid-check meetings to keep track on the customer value alignment and gain better understanding on the details, so that the team is able to make well informed decisions on the development details. These improvement efforts were handled in more detail in the previous chapter, in Chapter 7.2 Improving Customer Value Driven Improvement.

Because of the variance of how the software development teams are organized, the best practices instructions of this research can't rely on the teams' ability of obtaining the required customer value understanding by participating in the customer meetings. Therefore project managers' best practices for improved shared customer value understanding concentrate on sharing the customer value goals and measuring and visualizing the SMART customer value indicators, described in more detail in the Chapter 4.1.1 Elaborating Goals with Customer and Team.

7.3 Improving Customer Value Driven Improvement

Fujitsu software development projects have a strong culture in continuous improvement and based on the baseline situation analysis it seems that majority of the project managers also take customer value well into consideration in these improvement efforts. Despite this, all projects would benefit from supportive practices especially in planning and checking stages in the continuous improvement cycle which would guide the improvement efforts to focus clearly on customer value enabling work and leave out the rest.

The best practices suggest that clarifying the customer value goals with Quality Function Deployment steer also the direction of all continuous improvement by making the results checking more clear and leading in better customer value enablement in projects. As described in the theoretical research, projects benefit from proactive approach with a focus on checking and acting in the continuous development cycle. To be able to follow up on customer value based improvement, project team and project manager needs to be able to measure the customer value alignment already during the project. Workshop Team 3 (2015) discussed the possibilities to tackle the challenge; conducting a customer query or interview on customer value alignment when there's new features presented or delivered to the customer would be a good practice. In some situations also piloting and experimenting could be useful in gaining knowledge on how the features are used in customer use. To have frequent enough delivery for the customer to be able to discuss and guide

the improvement efforts, the delivery times of project outcomes need to be shortened by making smaller increments. Even if the customer wouldn't demand it, the increments should be short to foster the customer value enabling culture and show the customer how well it supports customer value alignment. (Workshop Team 4, 2015)

Sensible phasing with continuous customer value delivery and measurement, using especially SMART indicators, ensure customer value alignment during the project and provide a means to check the direction of continuous improvement, as it provides timely data to project manager, customer and the development team to show whether the development is in line with the customer value goals. Using this knowledge all the participants can learn and make well-educated decisions to improve the customer value alignment continuously. Utilizing these indicators is added in the best practices documentation.

When considering lean principles, the improvement is always measured in terms of improvement in customer value and how it's delivered; for example being able to deliver customer better quality software with better suiting functionalities without too long wait times. Continuous improvement can happen within one project or it can be looked from a wider perspective than only one project, improving the customer offering as a whole consisting of many projects and services. This research has a focus of improvement happening within one project and only slightly touch on what can be done in the project closure to serve the customer better in the future – in next project or during the maintenance phase of the product.

8 Conclusions

“People need to know how their job contributes.” Edward Deming, 1982

The main practical goal was to establish Best Practices Documentation for Understanding and Ensuring Customer Value in Projects, which could be accepted to be piloted in a Fujitsu software development project with an external customer. This goal was reached with positive regards from the software development project management team and their directors.

The practices for understanding customer value and establishing clear customer value goals were chosen to be based on Quality Function Deployment and the House of Quality, which was a widely supported choice among the Workshop Teams and the rest of the software development project management team. Following these practices answers to all the needs recognized by the Workshop Team 1 (2015);

1. Need to have a way to establish clear customer value goals,
2. need to share the customer value understanding with the team and
3. need for continuous improvement driven by customer value focus.

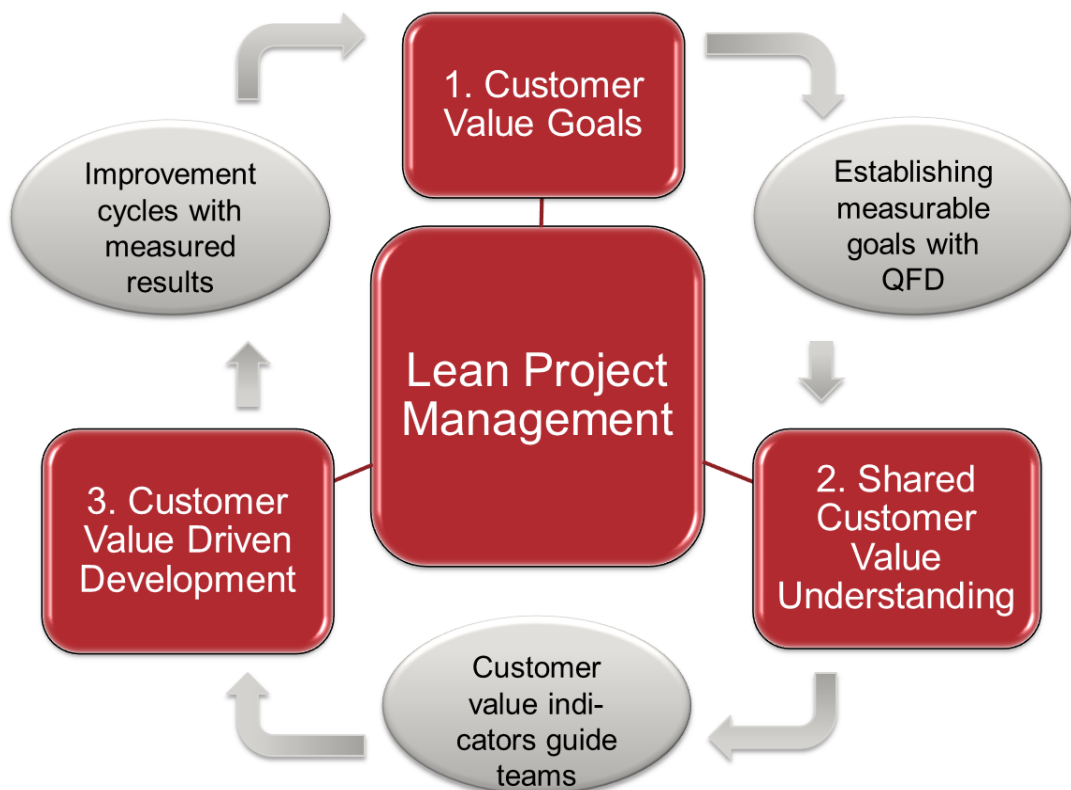


Figure 26, The Areas for Improvement and the Related Practices

All the improvement areas and the practices highly interrelate and partly overlap each other; improving one area affects positively the others, as depicted in Figure 26. Establishing clear customer value goals is a starting point in their communication to the team, and a clear improvement of planning stage of continuous improvement. Improving shared customer value understanding among the team intensifies the continuous improvement, when each member is has enough customer value understanding to contribute to it with his own actions. Checking stage of continuous improvement provides feedback to the team and information to different parties updating and setting new customer value goals for future, next improvement cycle or next project improving project customer value alignment and enhancing the customer ability creating value with the project deliverables.

This action research serves the twofold objectives of an action research - the theoretical and practical - by answering to a question what is lean project management and applies the related theories and principles in the best practices documentation improving Fujitsu lean project management. The research guides the project management towards better customer value understanding and alignment, focusing on value creation instead of only task completion and giving the project managers a reminder on phasing the project into small development cycles to obtain continuous improvement, all these being criteria of lean project management (Bell et al 2011, 212). Fujitsu lean project management culture and practices can be seen as a competitive advantage, as projects aim for customer value goal alignment improving customers' ability to create value with the end results, making both the customer and Fujitsu more successful in the future.

8.1 Conclusions on Customer Value Understanding

Project managers' understanding on customer value was improved as a result of keeping the concept under discussion in the workshops and the presentations in the software project management team meetings. Considering the elusiveness of the customer value concept, the level of project managers' understanding customer value as a concept in the results analysis can be considered comprehensive among majority of project managers in the software development project management team. It creates a promising starting point for applying best practices in setting clear customer value goals for the software development projects.

The project managers' need of having clarity in the customer value goals is answered in the research Best Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects (Restricted Availability Appendix 3). The best practices document instructs to agree on the customer value goals together with the customer in the

Kick-off meeting in the beginning of the project. Following those best practices the project managers can identify and prioritize the customer value groups, discuss the expectations and needs of each group and derive clear, measurable customer value goals. This is done following practices applying Quality Function Deployment (QFD) methodology adapted to suite in Prince2 project management method, making it easier for project managers to follow the steps in already well-known project stages. These steps result in customer value goals, which can be used as concrete objectives to be pursued and measured in all software development projects in a standard, non-varying way, which is one of lean cornerstones in improvement (Bell et al 2011, 82). Now project managers are able to monitor customer value goals together with the already well-monitored financial metrics support far-reaching business health in a sustainable, balanced way, as suggested by Kaplan and Norton (1992, 71) and majority of lean practitioners, such as Bell et al (2011, 143) and Humble et al (2014, 111).

8.2 Conclusions on shared customer value understanding

Having the customer value indicators in place lead to the second need for improvement; sharing customer value understanding with the team. As Gustavson et al (2014, 75) suggested, the team's focus and contribution to its goals are directed by the indicators used in measuring team performance. Shared understanding can be improved by many different aspects in the best practices documentation:

- The team or a sub-set of the team should participate in the customer value goal setting in the beginning of the project deepening the customer value understanding confirmed directly from the customer.
- Project manager can adopt the clear customer value goals created with QFD into all communication with the team using them for example in reasoning decisions and visual status updates.
- Project manager can monitor customer value indicators to provide timely and visual feedback on customer value alignment to the team.

Even though the practices concentrate more on project managers' customer value understanding than on the teams', the practices have a relative impact on the teams' ability in gaining the same understanding among the team, as the better the project manager can understand the customer value expectations and establish clear customer value goals and their indicators, the better they can be shared with the team. However, all the new practices for establishing clear customer value goals to be shared with the project team are now only presented to the software management team; applying the new project management

practices are going to be piloted before standardizing the new instructions to all the projects. Therefore their effects on the shared customer value understanding can't be analyzed in more detail at this point, but at least a higher sense of urgency to improve this area is now created among the software development project managers, as can be seen in the Query 1 and 2 results measured before and after the improvement efforts. The only clear change in the project managers' customer value sharing is the decline in confidence in sharing the customer value to the team, which can be explained with the expectation level of understanding customer value, which is now higher and the project managers understand the complexity of the matter. Now they understand how the customer value could be utilized in the team communication comparing to how it is currently used.

There can be seen another reason for the decline in the project managers confidence in their teams customer value understanding; the research improvement efforts focusing on shared customer value understanding initially focused on getting the team in the direct customer communication, which was justified by the ineffectiveness of project managers' customer value sharing with the team in the baseline situation and by literature on gaining shared awareness (Modig et al 2013, 135, 139), close customer dialogue (Poppendieck et al 2010, 31), value co-creation (Grönroos 2011, 290) and high-performing teams with external focus (Hawkins 2011, 33-34). Sometimes the theories are proved to be too ambitious to be viable. Based on this research, teams in direct customer communication does not suite organizations with a more hierarchical project organization structure and traditional contracts with fixed price, schedule and scope, or at least the change in the best project practices would require major culture change in how projects are managed and sold. As teams' direct customer communication and team autonomy was therefore not accepted as a Fujitsu lean project management principles, the instructions rely on improving project managers' abilities in reflecting the customer value goals to the team and using the goals in monitoring the progress.

Additionally, despite the negative trend in the confidence described above, the project manager perception on the teams' customer value understanding is now more in line with the software development professionals' perception in the baseline analysis, where the software development interviewees considered the shared customer value understanding as a widely varying factor from one project to another – even from one project member to another in the same project. This is a productive foundation for improving shared customer value understanding in the future.

8.3 Conclusions on Customer Value Driven Improvement

The third area for improvement - need for continuous improvement driven by customer value - is improved by providing best practices concentrating on planning and checking stages in the continuous improvement cycle and shortening the cycle length. Many of Fujitsu software development projects are relatively large long-term projects, making it even more important to have customer value driven improvement cycles ensuring early feedback on how the customer value goals are reached within the project. The theory background described a proactive approach is the most value-enabling type of work, where the improvement stages of planning and checking play a key role (Bell et al 2011, 25). Having a structured way to focus on customer value in improvement efforts makes the project management and project work more proactive. These clear customer value goals provide a practical aim for each stakeholder; project managers and their teams as well as the customer can focus in the areas that matter the most to the most important customer groups and reduce the amount of redundancies – waste - from the projects and their results. Now each participant can contribute to better customer value alignment from their own perspective. Planning the improvement is based on the clear customer value goals as described in the Chapter 8.1.

Phasing the improvement efforts in short improvement cycles ensure customer value goal fulfilment in collaboration with relevant customer groups. This way the improvement guides the improvement towards better customer value goal fulfilment and gains more frequent feedback from customer value checking points during and after the project. As a result the information is available to check how the goals are being fulfilled and if the done decisions in the project has been well aligned with customer value or should be further improved to enable better customer value creation with the end result. The practices improving the customer value alignment checking were well received by the software development project management team, especially the customer value evaluation in the project ending and 6 Months after the project gaining full support from the Query 2 (2016) respondents having read the instructions.

Fujitsu principle “*Put the Customer First*” is well utilized as constant purpose behind these practices of customer value focused continuous improvement, but it is left to be investigated in the future pilot project how these practices influence customer value alignment in practice.

8.4 Trustworthiness of the Research

A good way to handle trustworthiness in a qualitative research is to present its credibility, transferability, dependability and confirmability factors (Shenton, 2004, 64).

This research baseline data construction was done with a data triangulation to obtain data credibility: data was collected from software development project managers, their teams and lean consultants. This made the research more likely to give a true picture on situation of customer value in project management. On the other hand the workshop team didn't consist of equal participants, as the software development project management teams' line manager and the director of program and project management were present as well, making it likely that not all differentiating opinions were expressed to the researcher within or outside the workshops. The interviewees (9 people), workshop team members (10 people) and the software development project management team (21 people, of which partly the same as the workshop team members) form only a small group of people all acting in Fujitsu Finland working culture, making the data only a sample of software development project work in one organization.

The research results confirm only the project managers' understanding and expectations towards the Best Practices Documentation for Understanding and Ensuring Customer Value Alignment in Projects (In Restricted Availability Appendix 3). The plan is to take the instructions into use; it is planned to be generalized inside Fujitsu Finland and possibly in Fujitsu Nordic as standard software development project practices once the piloting project has tested them. The research can be applied to some extent also in other companies doing project management in large and medium sized software development projects, but the approach is likely to be too heavy-weight for small projects and too different from for example projects working on infrastructure.

The research is dependent on the context because of the restricted availability of the notes on improvement efforts, the resulted best practice documentation, baseline and result analysis making it impossible for a researcher outside Fujitsu Finland to follow the research implementation exactly the same way. However, the status of customer value utilization in project management is constantly improving, so the results wouldn't be the same even if the research was repeated the same way and with the same people. The research design and overall research approach is public and it can be well utilized in other studies.

The close cooperation with a workshop team consisting of software development project managers reduces common action study risk of research becoming isolated from the practice (Thomas, 2004, 142), and therefore the chosen improvement steps are more likely to reflect the workshop teams real needs and preferences, although it would have been more efficient in supporting exchange of different opinions if the workshop group would have been gathered without the teams' management present. But on the other hand, it is very important to have the management support to successful implementation of action research.

9 Discussion and Further Development

“The secret of success is not to foresee the future, but to build an organization that is able to prosper in any of the unforeseeable futures.” Michael Hammer quoted by Poppendieck et al 2010, 236.

The research theory basis is useful to readers interested in learning what lean provides to project type of ICT work. During the research the researcher dived into a multitude of literature on lean and lean ICT, growing the ability to differentiate the well-written lean literature from the books that are only superficially utilizing lean tools but not aligned with lean thinking.

This research improvement approach can be used as an example to others doing action research, as the main research outcome, the best practice documentation, gained positive regards from the team aimed to apply the best practices in their work. The research was based on close cooperation with Fujitsu software development project management team, which was a very productive way both in placing the research problems to reflect the current challenges the software project management was facing and in experimenting and selecting well-fitting solutions that adapt in the current project management processes. To the researcher the chosen workshop methodology was proven to be a rewarding and natural way of improving lean software management culture and processes –the way things are done around here – instead of only putting the ideas in the documents for the people to possibly read and try to grasp without a two-way communication channel. This workshop utilizing approach can be recommended when doing action research especially for a team of professionals with a long-term experience in the field.

The research could have concentrated solely in establishing clear customer value goals, but Fujitsu demand was to address also the other two topics - the shared awareness and the continuous improvement – in the research. However, looking at the research results it is recommendable to conduct more research especially concentrating on improving the software development teams' shared awareness.

The research mentor and Fujitsu director of program and project management Caselius has confirmed that the Best Practices Documentation is approved. As action research is cyclical in nature (Thomas 2004, 144) the lean project management improvement continues after this research. The next phase is going to be piloting the practices in a customer project with a support of a lean consultant, and to deepen the understanding of customer value goals in that pilot project (Software Development Project Management Team, 2016).

Therefore how effective the practices are going to be in the pilot project or in wider use is left to be confirmed after this research is done. Once the first experiences are gained from the pilot, it is recommended to share the lessons learned and the new practices with Fujitsu Finland, Fujitsu Nordic and possibly other Fujitsu offices showing interest in Finnish Fujitsu lean practice improvement. These practices are unfortunately handled as a secret part of this research making it impossible to utilize the Best Practices Documentation outside of Fujitsu, but internally a research with a statistical approach would be interesting to show how applying these practices affect customer satisfaction, customer contract renewals, project long-term profitability and / or project team satisfaction.

There are lot of research done on customer value from the sales and marketing point of view, but it would be recommendable to do action studies on improving customer value focus in the project sales department. The nature of projects is quite different from services, as project contracts - except some agile hour-based contracts - often have a very specific scope and agreed deliverables, having quite an impact on project possibilities in aligning with the customer value goals. Those contracts guide project work on such a level, that it's worth cooperating with sales team to gain harmony between customer value goals and contracts by making the contracts more customer value centered.

References

"The next best thing to knowing something is knowing where to find it." Unknown
(Bhatia 2012, 140)

Alhosaari, Tapani. 2015. System Architect. Fujitsu Finland Oy. Interview. 16.10.2015 Helsinki.

Amazon.com. 2016. Average Customer Review of Creating a Lean Culture: Tools to Sustain Lean Conversions, Second Edition 2nd Edition. Available at http://www.amazon.com/Creating-Lean-Culture-Sustain-Conversions/dp/1439811415/ref=sr_1_2?ie=UTF8&qid=1457281084&sr=8-2&keywords=creating+a+lean+culture+mann [Accessed 4.3.2016]

Arveson, Paul. 1996a. Basic Tools for Basic Process Improvement. Module 2 Brainstorming [pdf] Balanced Scorecard Institute. Available at: < <https://balancedscorecard.org/Portals/0/PDF/brainstm.pdf> > [Accessed 18.2.2016]

Arveson, Paul. 1996b. Basic Tools for Basic Process Improvement. Module 5, Cause-and-effect Diagram. Available at: < <https://balancedscorecard.org/Portals/0/PDF/c-ediag.pdf> > [Accessed 18.2.2016]

Arveson, Paul. 1996c. Basic Tools for Basic Process Improvement. Module 8, Pareto Chart. Available at: <<https://balancedscorecard.org/Portals/0/PDF/pareto.pdf>> [Accessed 18.2.2016]

Axelos. 2015. PRINCE2 Agile. PPM Official Publisher. United Kingdom.

Batley, Mason. 2015. Customer Solution Architect. Fujitsu Finland Oy. Interview. 16.10.2015. Helsinki.

Bell, S. & Orzen, M. 2011. Lean IT: Enabling and Sustaining Your Lean Transformation. Productivity Press. New York, U.S.A.

Bhatia, Ashu. 2012. Value Creation. Linking Information Technology and Business Strategy. Brown Books Publishing Group. Dallas, Texas U.S.A.

- Caselius, Topi. 2016. Instructions feedback and improvement proposal meeting. Manager. 5.4.2016. Fujitsu Finland Oy.
- Cederqvist, Tomi. 2015. Test Manager. Fujitsu Finland Oy. Interview. 9.10.2015. Helsinki
- Charron, R., Harrington, J., Voehl, F., and Wiggin H. 2015. The Lean Management Systems Handbook. CRC Press. Boca Raton, U.S.A.
- Dahlman, M. Olsson, U. 2014. Applicability of Lean toward improved efficiency in software development – A case study at a Swedish ICT Company. <https://www.diva-portal.org/smash/get/diva2:730815/FULLTEXT01.pdf> [Accessed 11.3.2016]
- Ficalora, J. & Cohen, L. 2009. Quality Function Deployment and Six Sigma, Second Edition: A QFD Handbook. [Kindle Edition] Pearson Education. Available at: Kindle Reader for PC <www.amazon.com> [Accessed 2.12.2015]
- Fujitsu 2014a. Timo.Haavisto@fi.fujitsu.com, 2014. Fujitsu Nordic Strategy FY13-FY16 Manager Version.pptx [email attachment] Message to Leena Saari (Leena.Saari@fi.fujitsu.com) Sent 21.8.2015 14:05 [Accessed 21.8.2015] Fujitsu Internal Document.
- Fujitsu 2014b. Timo.Haavisto@fi.fujitsu.com, 2014. Fujitsu Way 06032014.pptx. [email attachment] Message to Leena Saari (Leena.Saari@fi.fujitsu.com) Sent 21.8.2015 14:05 [Accessed 21.8.2015] Fujitsu Internal Document.
- Grönroos, C. 2011. Value co-creation in service logic: A critical analysis. Marketing Theory article. Sage Publications Inc. Pp. 279 – 301.
- Gustavson, P. & Liff, S. 2014. A team of leaders: empowering every member to take ownership, demonstrate initiative and deliver results. American Management Association. United States of America.
- Highsmith, J. 2010. Agile Project Management: Creating Innovative Products. 2nd Edition. Agile Software Development Series. Pearson Education.
- Holopainen, Mika. 2015. Technical Architect. Fujitsu Finland Oy. Interview. 9.10.2015. Helsinki.

- Humble, J. Molesky, J. & O'Reilly, B. 2014. Lean Enterprize. How High Performance Organizations Innovate at Scale. O'Reilly Media Inc. United States of America.
- Kasanen, Kari. 2015. Tämä kirja auttaa muutosjohtamisessa. Käperry siiliksi ja menesty, yksi bisneskirjallisuuden klassikoista neuvoo. Helsingin Sanomat. 6.12.2015. [online] Available at:< <http://www.hs.fi/ura/a1449206618735>> [Accessed 19.1.2016]
- Kaplan, R. & Norton, D. 1992. Using The Balanced Scorecard as a Strategic Management System. Harvard Business Review. [online] Available at <http://ezproxy.haaga-helia.fi:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bsh&AN=25358567&site=ehost-live> [Accessed 4.9.2015]
- Mann, D. 2010. Creating a Lean Culture – Tools to Sustain Lean Conversions. Second Edition. Productivity Press. New York, USA.
- Manning, L. & Reece, B. & Ahearne, M. 2010. Selling Today. Creating Customer Value. 11th Edition. Pearson Education. New Jersey, USA.
- Modig, N. 2015. Lean Workshop Seminar. Researcher at the Center for Innovation and Operations Management at Stockholm School of Economics. Laatuokeskus Oy. Seminar. 27.8.2015. Helsinki.
- Modig, N. & Åhlström, P. 2013. Tätä on lean: ratkaisu tehokkuusparadoksiin. (M. Tillman, Trans.). 2nd Edition. Rheologica Publishing. Halmstad.
- Oakland, John. 2014. Total Quality Management and Operational Excellence. Text With Cases. 4th Edition. Routledge Group. London and New York.
- Patomo, Virva. 2015. Lead Consultant. Fujitsu Finland Oy. Interview. 11.9.2015. Helsinki.
- Poppendieck, M. & Poppendieck, T. 2010. Leading Lean Software Development: Results are Not the Point. Addison-Wesley. Boston, United States of America.
- Project Management Institute Inc. 2016. What is Project Management? [online] Available at: <<http://www.pmi.org/About-Us/About-Us-What-is-Project-Management.aspx>> [Accessed 24.2.2016]

- Rikkinen, Paula-Maiju. 2015. Lean Consultant. Fujitsu Finland Oy. Interview. 11.9.2015. Helsinki.
- Rosas, Henrik. 2015. Solution Architect. Fujitsu Finland Oy. Interview. 16.10.2015. Helsinki.
- Shenton, A. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information* 22. [online] Available at: <http://www.crec.co.uk/docs/Trustworthypaper.pdf> [Accessed 6.5.2016]
- Simon, S. 2009. *Start With Why: How Great Leaders Inspire Everyone to Take Action*. New York.
- Sims, Nikki. 2006. *How to Run a Great Workshop*. Pearson Education Limited. Great Britain.
- Slack, N. & Lewis, M. 2011. *Operations Strategy*. Prentice Hall, London.
- Sohlo, Juuso. 2015. Test Manager. Fujitsu Finland Oy. Interview. 9.10.2015. Helsinki
- Software Development Project Management Team. 2016. Project Management Monthly Meeting. Haavisto, T., Caselius, T., Hakala, J. Inkinen, M., Kaipainen, K., Kanala, K., Karhu, S., Laurila, P., Murto-Koivisto, P., Niemelä, M., Pesonen, J., Päckilä, S., Rintaluoma, J. Siitonen, M., Tammela, E., Tupala, A., Turkki, T. & Saari, L. Presentation of the Best Practices Documentation. Software Development Project Managers. 9.2.2016. Fujitsu Finland Oy.
- Säisä, Sami. 2015. Lead Productivity Consultant. Fujitsu Finland Oy. Interview. 11.9.2015. Helsinki.
- Workshop Team 1. 2015. Caselius, T., Haavisto, T., Huhtala, M., Kaipainen, K., Koivunen, T. & Uikkanen, E., Facilitator Saari, L. Fujitsu Finland Oy. Workshop 24.9.2015 Helsinki
- Workshop Team 2. 2015. Caselius, T., Immonen, T., Haavisto, T., Huhtala, M., Kaipainen, K. & Koivunen, T., Facilitator Saari, L. & Patomo, V. Fujitsu Finland Oy. Workshop 29.10.2015 Helsinki

Workshop Team 3. 2015. Caselius, T., Haavisto, T., Holopainen, M., Immonen, T., Huhtala, M., Kaipainen, K., Koivunen, T., Rosas, H. & Uikkanen, E., Facilitator Saari, L. Fujitsu Finland Oy. Workshop 18.11.2015 Helsinki

Workshop Team 4. 2015. Caselius, T., Haavisto, M., Immonen, T., Huhtala, M., Kaipainen, K. & Lötjönen, M. Facilitator Saari, L. Fujitsu Finland Oy. Workshop 10.12.2015 Helsinki

Appendix 1, Secret, Lean Strategic focus of Fujitsu Finland

Appendix 2, Secret, Empiric Research, Findings from baseline data construction on Fujitsu Project Management

Appendix 3, Secret, Best Practices Documentation for Understanding and Ensuring Customer Value in Projects.

Appendix 4, Secret, Improvement Results

Appendix 5, Interview questions.

Appendix 5.1 Lean Consultants 11.9.2015

Teen Haaga-Helian ylemmän ammattikorkeakoulun opinnäytetyötä Fujitsulle, jonka tarkoitus on luoda projektipäälliköille ohjeet siitä, miten tunnistaa asiakkaan tarpeet ja miten ne voisi parhaiten täyttää, ja varmistaa, että asiakas saa asiakasarvoa. Nämä parhaat käytännöt sitten tarjotaan kaikkien Fujitsun projektipäälliköiden käyttöön. Tämän haastattelun tarkoituksena on tehdä alkukartoitusta siitä, mitä asiakasarvoon liittyviä periaatteita ja menetelmiä lean tarjoaa projektipäälliköiden käyttöön, ja tulokset ohjaavat työn rajausta ja menetelmävalintoja seuraavissa vaiheissa. Jos sinulle sopii, nauhoitan haastattelun.

Haastattelun jälkeen kirjoitan haastattelupöytäkirjan, jonka jätän sinulle kommentointia varten.

Haastattelu kestää noin 45 minuuttia ja on jaettu kolmeen osioon, taustaan, mistä tietää mitä pitäisi tehdä, ja lopuksi miten varmistutaan, että tehdään oikeita asioita.

A) TAUSTA

1. Mitä teet työkseesi?
2. Kerro lyhyesti, millaisia tehtäviä sinulla on ollut Fujitsulla?
(as vai sis hankkeet,
Kehittämiskohteita; projektit, palvelut?
käytetyt keinot –workshopit? Työkalut?)

ASIAKASARVON TUNNISTAMINEN

1. Mitä on asiakasarvo ohjelmistokehityksessä ja mitä se ei ole?
2. Mikä merkitys on sillä, että projektipäällikkö tuntee asiakkaan ja asiakkaan toimintaympäristön?
3. Raja pois prosessissa seuraavan sisäisen asiakkaan, eli keskitytään tässä loppukäyttäjään ja tuotteen maksajaan:
Millä keinoilla projekteissa voisi ymmärtää paremmin asiakkaan tarpeita ja tarjota asiakkaalle niiden pohjalta oikeita asioita?
4. Kenellä pitäisi olla käsitys asiakasarvosta? Miten tilanne parhaiten saavutetaan?

B) ASIAKASARVON TOTEUTUMINEN

1. Millä menetelmillä voi varmistaa, että projektissa tehdään oikeita asioita asiakkaan näkökulmasta?
2. Mikä mittari kertoisi parhaiten asiakasarvon toteutumisesta projektityössä?
3. Mikä on yleisin este asiakasarvon huomioinnille projektityössä?
4. Onko projektipäällikön ja projektitiimin henkilökohtaiset tapaamiset edellytys yhteiselle asiakasarvonäkökulmalle?
5. Perinteisessä projektimallissa kaikki vaatimukset määritellään tarkasti ennen kuin projekti alkaa. Voiko tällainen perinteinen ohjelmistokehitys ottaa asiakasnäkökulman hyvin huomioon vai pitäisikö pyrkiä kohti ketterää kehitystä?
6. Mikä olisi ensimmäinen askel kohti projektien asiakasarvokeskeisyyttä?

C) LOPETUS

1. Onko jotain, mitä haluaisit vielä sanoa? Neuvoja? Terveisiä projektipäälliköille?

Teen Haaga-Helian ylemmän ammattikorkeakoulun opinnäytetyötä Fujitsulle, jonka tarkoitus on luoda projektipäälliköille ohjeet siitä, miten tunnistaa asiakkaan tarpeet ja miten ne voisi parhaiten täyttää, ja varmistaa, että asiakas saa asiakasarvoa. Nämä parhaat käytännöt sitten tarjotaan kaikkien Fujitsun projektipäälliköiden käyttöön. Tämän haastattelun tarkoituksena on tehdä alkukartoitusta siitä, miten asiakasarvo otetaan tällä hetkellä huomioon, ja mitkä toimintatavat olisi hyvä jakaa kaikkien projektien ja erityisesti projektipäälliköiden käyttöön.

Haastattelun jälkeen kirjoitan haastattelupöytäkirjan, jonka jätän sinulle kommentointia varten.

Haastattelu kestää noin 45 minuuttia ja on jaettu kolmeen osioon, taustaan, asiakasarvon ymmärtämiseen ja varmistamiseen.

Asiakasarvon määritelmää:

Asiakasarvoa on sellainen tuote tai palvelu, jonka asiakas haluaa ja josta on valmis maksamaan.

Se parantaa tai helpottaa asiakkaan elämää tai loppukäyttäjän elämää jollain tavalla. Eli asiakasarvo mietitään aina asiakkaan näkökulmasta; kuinka paljon helpompaa tai nopeampaa on vaikka tehdä tilaus uudella käyttöliittymällä kuin vanhalla jne.

How do they see the current situation inside projects; are project managers promoting and ensuring customer value thinking? What effect does it have to a project success? How could customer value thinking be adopted better in projects?

D) TAUSTA

3. Mitä teet työkseksi?
4. Kerro lyhyesti, millaisia tehtäviä sinulla on ollut Fujitsulla?

ASIAKASARVON MUODOSTUMISEN YMMÄRTÄMINEN

5. Miten tämänhetkinen projektisi tuottaa asiakasarvoa, eli sitä mikä helpottaa asiakkaan päivää, kun saa valmiin tuotteen?
6. Ihan käytännössä, miten asiakkaan tarpeet ja odotukset selvitetään projektin alussa? (Preproject ja Project Initiation)
7. Kerro
 - a. Onnistunut esimerkki asiakasarvon hyvästä ymmärtämisestä
 - b. Esimerkki asiakasarvon puutteellisesta ymmärtämisestä / huomioimisesta?
8. Mistä nämä mainitsemasi onnistumiset ja epäonnistumiset johtuivat?
9. Millä keinoilla projekteissa voisi ymmärtää paremmin asiakkaan tarpeita ja tarjota asiakkaalle niiden pohjalta oikeita asioita?
10. Kenen vastuulla on tietää, mikä tuottaa asiakkaalle hyötyä juuri tässä projektissa?
11. Tukevatko projektipäälliköt mielestäsi projektin asiakasarvoajattelua? Tuovatko he asiakkaan näkökulmaa esiin päätöksentekotilanteissa?
12. Miten huomioit asiakasarvon työsi suunnittelussa, vai voiko työsi tehdä hyvin ilman tarvetta miettiä mikä on tämän projektin asiakkaan arvoa?
13. Arkkitehdeille: onko arkkitehtuurin suunnittelussa houkutus tehdä ns. hienompaa kuin asiakas tarvitsekaan? Ja jos on, miten siitä voisi päästä eroon? Miten projektipäällikkö voisi tukea sinua asiakasarvon huomiomiseksi?
14. mitä tietoja arkkitehdit/testaajat tarvitsisivat asiakkaalta (projektipäällikkö varmistaa tiedonsaannin), jotta voisivat suunnitella arkkitehtuurin/testit paremmin asiakasarvolähtöisiksi.

E) ASIAKASARVON TOTEUTUMINEN

7. Millä menetelmillä voi varmistaa, että projektissa tehdään oikeita asioita asiakkaan näkökulmasta?
8. Mikä on yleisin este asiakasarvon huomioinnille ohjelmiston kehittämisvaiheessa?

9. Seuraako projektipäälliköt kokemuksesi mukaan sitä, toteutuuko asiakasarvo projektin kuluessa? Miten?
10. Onko projektissasi liikkumavaraa ottaa asiakkaan tarpeet huomioon myös kesken projektin?
11. Mikä olisi mielestäsi ensimmäinen askel kohti projektien parempaa asiakasarvokeskeisyyttä?

F) LOPETUS

2. Onko jotain, mitä haluaisit vielä sanoa? Neuvoja? Terveisiä projektipäälliköille?

Appendix 6.1

Query 1 Results, 27.10.2015

1. Asiakasarvon huomiointi viimeisimmässä asiakasprojektissasi:

Vastaajien määrä: 13

	Täysin eri mieltä	Jokseenkin eri mieltä	Jokseenkin samaa mieltä	Täysin samaa mieltä	Yhteensä	Keskiarvo
Olen käynyt läpi asiakkaan tarpeet ja odotukset asiakkaan kanssa.	1	0	8	4	13	3,15
Olen käynyt läpi loppukäyttäjän tarpeet ja odotukset loppukäyttäjän kanssa.	3	2	4	4	13	2,69
Ymmärrän mikä tuottaa asiakkaalle arvoa tässä projektissa.	0	1	8	4	13	3,23
Osaan valita Fujitsun sekä asiakkaan tarpeisiin sopivat tavoitteet.	0	1	9	3	13	3,15
Käytän asiakasarvomittareita projektin etenemisen seurannassa.	4	4	4	1	13	2,15
Varmistan projektin lopussa, että tavoiteltu asiakasarvo on toteutunut.	0	6	6	1	13	2,62
Yhteensä	8	14	39	17	78	2,83

2. Projektitiimit ja jatkuva kehitys.

Vastaajien määrä: 13

	Täysin eri mieltä	Jokseenkin eri mieltä	Jokseenkin samaa mieltä	Täysin samaa mieltä	Yhteensä	Keskiarvo
Projektipäällikkönä motivoin projektitiimiä tuomalla esiin sen millaista asiakasarvoa tuotamme projektissa.	0	1	7	5	13	3,31
Käyn jatkuvaa dialogia asiakkaan kanssa.	1	1	5	6	13	3,23
Projektitiimi käy jatkuvaa dialogia asiakkaan kanssa.	0	4	6	3	13	2,92
Kaikki projektitiimini jäsenet osaavat kertoa selkeästi mitä asiakasarvoa projekti tuottaa.	1	4	6	2	13	2,69
Projektitiimi työskentelee kohti yhdessä sovittuja asiakasarvotavoitteita.	0	2	9	2	13	3
Asiakkaan palaute ohjaa projektityötämme ohjelmiston kehitysvaiheessa (project delivery stages).	0	1	7	5	13	3,31
Yhteensä	2	13	40	23	78	3,08

3. Käyttämäsi työtavat asiakasarvon ymmärtämiseksi:

Vastaajien määrä: 13

	En tunne	Tiedän, mutten koe hyödylliseksi	Tiedän, ja haluaisi osata käyttää	Tunnen, ja koen hyödylliseksi, muttei sovellu	Tunnen, käytän työssäni jonkin verran	Tunnen, käytän tätä tehokkaasti	Yhteensä	Keskiarvo
Työpajat (vaatimusmäärittelyyn ja tekniseen analyysiin)	0	0	1	1	4	7	13	5,31
Haastattelut (asiakkaat ja muut sidosryhmät)	0	0	2	4	6	1	13	4,46
Ketterä sprinttisuunnittelu tuotteenomistajan ja projektiimiin kanssa	1	0	0	5	2	5	13	4,69
Asiakasdemo ja palautteen keruu	0	0	2	1	5	5	13	5
Loppukäyttäjäkyselyn analysointi	0	0	2	4	5	2	13	4,54
Asiakkaan saaman palautteen analysointi	2	0	0	0	10	1	13	4,46
Arvovirtakuvaus (asiakkaan prosesseista)	6	0	4	1	1	1	13	2,54
Customer Demand Analysis	7	0	4	0	2	0	13	2,23
Quality Function Deployment eli Laadun talo	10	0	2	1	0	0	13	1,54
Pareto-analyysi (80/20 –sääntö)	3	1	3	2	4	0	13	3,23
Yhteensä	29	1	20	19	39	22	130	3,8

4. Jos haluat, kerro mikä estää tai mahdollistaa asiakasarvon hyvän huomioinnin?

Vastaajien määrä: 7

- Asiakas ei itsekään täysin tiedä prioriteettejaan tai ne muuttuvat pitkän projektin aikana esim. riippuvuuksien muuttuessa. (Toinen projekti peruuntuu, liittymä toiseen järjestelmään ei toteudukaan toisen järjestelmän päästä, tms.)
- Asiakkaan keskittyminen toiminnallisuuksiin tarpeiden sijasta, puuttuvat kontaktit asiakkaan organisaatiossa, myynnin aikana tehdyt sitoumukset.
- Asiakasarvo voidaan tulkita monin eri tavoin. Voimme luulla tai arvata mikä se kullekin projektiin asiakkaalle on tai olisi, mutta Fujitsulla ei ole sellaista mekanismia, jolla asiakasarvosta asiakkaan kanssa puhuttaisiin, että kummallakin osapuolella olisi yhtäläinen tieto asiakasarvosta. Voihan se tietenkin olla Fujitsulla erikin kuin asiakkaalla, mutta parhaiten voi arvotavoitteen edes business caseä selvitetä asiakkaan kanssa, vaikka projektisuunnitelmassa on kappale tätä varten. Vaikka business case toteutumisen mittaaminen ei kuulukaan projektille, niin projekti luo kuitenkin edellytykset business casen toteutumiselle, jotta sitä voidaan mitata projektin päättymisen jälkeen.
- Kysely on kovin henkilöity projektipäällikköön. Projektit ja asiakkuudet ovat hyvin erilaisia. Projektipäällikkönä minä ei nykyisessä asiakasprojektissani ole paljoa yhteydessä asiakkaaseen, koska kyseessä on hyvin vakiintunut asiakkuus, jossa palvelupäälliköllä ja ylläpitotiimillä, mukaan lukien arkkitehti, hyvin tiivis yhteistyö asiakkaan kanssa.

Projektipäällikön, joka on ensimmäistä kertaa mukana tämän asiakkaan projektissa, on parempi olla sotkematta muiden hyvin toimivaa yhteistyötä asiakkaan kanssa.

- Asiakkaan oma ict-yksikkö ei osaa huomioida kaikilta osin loppuasiakkaan hyötytavoitteita ja arvontuotto asiakkaalle ja loppukäyttäjille on siten vaikeasti saavutettavissa.
- Kiinteähintainen projektin budjetti, etenkin kun budjetti on ylittynyt, ei anna mahdollisuutta asiakasarvon hyvään huomiointiin. Projektisopimukset ja kiinteät jo ennen projektin aloitusta sovitut aikataulut eivät mahdollista asiakasarvon huomiointia parhaalla mahdollisella tavalla.
- Monet listatuista työtavoista sopivat parhaiten projekteihin, joissa määritellään ja toteutetaan käyttöliittymä- ja/tai liiketoimintalogiikka.

1. Mitä asiakasarvo on? Jos haluat, kerro lyhyesti myös esimerkki omasta projektistasi.

Vastaajien määrä: 9

- Asiakkaalle tuotettu lisäarvo, asiakkaan business case
- Meidän liiketoimintamme tapauksessa IT-järjestelmän käytöstä saatavaa hyötyä, joka (mahdollisesti monia eri polkuja pitkin) lopulta muodostaa asiakkaalle joko a) lisää liikevaihtoa tai b) säästöä. Nämä eri polut voivat tulla esimerkiksi loppukäyttäjän kokemuksesta tai liikkeen sisäisten prosessien tehostamisesta.
- Asiakasarvo on sitä, että asiakas saa yhteisesti sovitun business casen mukaisesti arvoa tuotokselleen. Tähän kuuluu toimituksen laajuus, aikataulu ja hinta.
- Pohjimmiltaan asiakasarvo on mitattavissa rahassa, mutta asiakasarvon konkretisoituminen rahaksi ei ole ihan yksinkertainen juttu. Syy-seuraussuhteet voivat olla hankalia hahmottaa ja sitäkin vaikeampia ennustaa. Osa asioista ei ole itsessään arvokkaita, mutta mahdollistavat silti jotain kautta arvon tuottamisen. Sekä tuotto että tappioiden välttäminen on asiakasarvoa. Esimerkkinä LEAD-projekti, jossa tehtiin uusi sovellusten jakelumenetelmä, jolla yksinkertaistetaan ja automatisoidaan prosessia. Fujitsu säästää pitkässä juoksussa järjestelmällä rahaa pienentyneiden työkustannusten muodossa (=sisäisen projektin suunniteltu asiakasarvo), ja asiakas taas saa nopeampaa ja virheettömämpää palvelua (=loppuasiakkaalle syntyvä asiakasarvo), josta taas seuraa se, että Fujitsu koetaan parempana toimittajana ja sen kanssa tehdään lisää kauppaa (=Fujitsulle "oheistuotteena" syntyvä asiakasarvo).
- Tällä hetkellä asiakastyytyväisyyttä, asiakastyytyväisyyskyselyn tuloksen ilmaisemana. Jonkin verran asiakkaan sanallisesti ilmaisemaa sanomaa esimerkiksi demoissa ja johtoryhmän palavereissa. Ei ole mittareita. Demoja käytetään asiakasarvon toteutumisen varmistamiseen. Projektipäällikön valta tavoitteiden asettamiselle on hyvin rajoitettu, olen ottanut toteutettavaksi projektin, jonka sopimus oli jo neuvoteltu valmiiksi. Tavoitteet eivät olleet projektipäällikön aseltavissa. Arkkitehti on määritellyt vahvasti, millainen lopputulos projektista tulee ulos. Hänellä on ollut jatkuvan palvelun pohjalta läheinen suhde asiakkaaseen.
- Projektin tuottama hyöty asiakkaalle. Miten esim .toteutettu uusi it-järjestelmä parantaa ja tehostaa asiakkaan toimintaa niin, että se tuottaa lisäarvoa asiakkaalle.
- Toimittajan tulee varmistaa asiakkaalta, mitä asiakas haluaa ja tarvitsee ja sopia niiden toimittamisesta. Juuri ne asiat pitää asiakkaalle toimittaa juuri sovitulla tavalla. Asiakas ei välttämättä pidä siitä, että toimitetaan jotain ylimääräistä extraa, jota hän ei tarvitse. Varsinkin jos toimitetaan extraa, mutta sovitusta perustoimituksesta puuttuu jotain tai laatu on huono, niin seuraa epätyytyväisyyttä.
- Asiakasarvo on sitä, että projekti tuottaa asiakkaalle kyvykkyyksiä, joista on suoria hyötyjä ja/tai kustannussäästöä asiakkaalle tai asiakkaan sidosryhmille. Siten asiakkaan tekemä investointi tuottaa sen liiketoiminnalle lisäarvoa joko taloudellisena arvona (takaisinmaksuaika, ROI) tai muuna arvona (turvallisuus, asiakastyytyväisyys, ...). Muu arvontuotto voidaan mitata/arvioida yhteisön toimintaympäristössä tai yhteiskunnassa syntyvinä hyötyinä, jotka tuottavat asiakkaalle välillisesti myös taloudellista lisäarvoa esimerkiksi yhteisön maineen parantumisena.
- mitattava parannus, joka hyödyttää sidosryhmää

2. Asiakasarvon huomiointi viimeisimmässä asiakasprojektissasi:

Vastaajien määrä: 9

	Täysin eri mieltä	Jokseenk in eri mieltä	Jokseenk in samaa mieltä	Täysin samaa mieltä	Yhteensä	Keskiarvo
Olen käynyt läpi asiakkaan tarpeet ja odotukset asiakkaan kanssa.	1	3	2	3	9	2,78
Olen käynyt läpi loppukäyttäjän tarpeet ja odotukset loppukäyttäjän kanssa.	3	3	0	3	9	2,33
Ymmärrän mikä tuottaa asiakkaalle arvoa tässä projektissa.	1	2	4	2	9	2,78
Osaan valita Fujitsun sekä asiakkaan tarpeisiin sopivat tavoitteet.	0	4	3	2	9	2,78
Käytän asiakasarvomittareita projektin etenemisen seurannassa.	4	1	3	1	9	2,11
Varmistan projektin lopussa, että tavoiteltu asiakasarvo on toteutunut.	0	4	2	3	9	2,89
Yhteensä	9	17	14	14	54	2,61

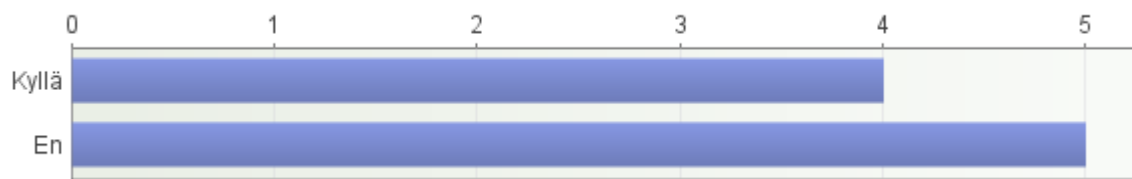
3. Projektitiimit ja jatkuva kehitys.

Vastaajien määrä: 9

	Täysin eri mieltä	Jokseenk in eri mieltä	Jokseenk in samaa mieltä	Täysin samaa mieltä	Yhteensä	Keskiarvo
Projektipäällikkönä motivoin projektitiimiä tuomalla esiin sen millaista asiakasarvoa tuotamme projektissa.	0	2	4	3	9	3,11
Käyn jatkuvaa dialogia asiakkaan kanssa.	1	1	3	4	9	3,11
Projektitiimi käy jatkuvaa dialogia asiakkaan kanssa.	0	3	3	3	9	3
Kaikki projektitiimini jäsenet osaavat kertoa selkeästi mitä asiakasarvoa projekti tuottaa.	1	6	1	1	9	2,22
Projektitiimi työskentelee kohti yhdessä sovittuja asiakasarvotavoitteita.	1	3	4	1	9	2,56
Asiakkaan palaute ohjaa projektityötämme ohjelmiston kehitysvaiheessa (project delivery stages).	1	1	3	4	9	3,11
Yhteensä	4	16	18	16	54	2,85

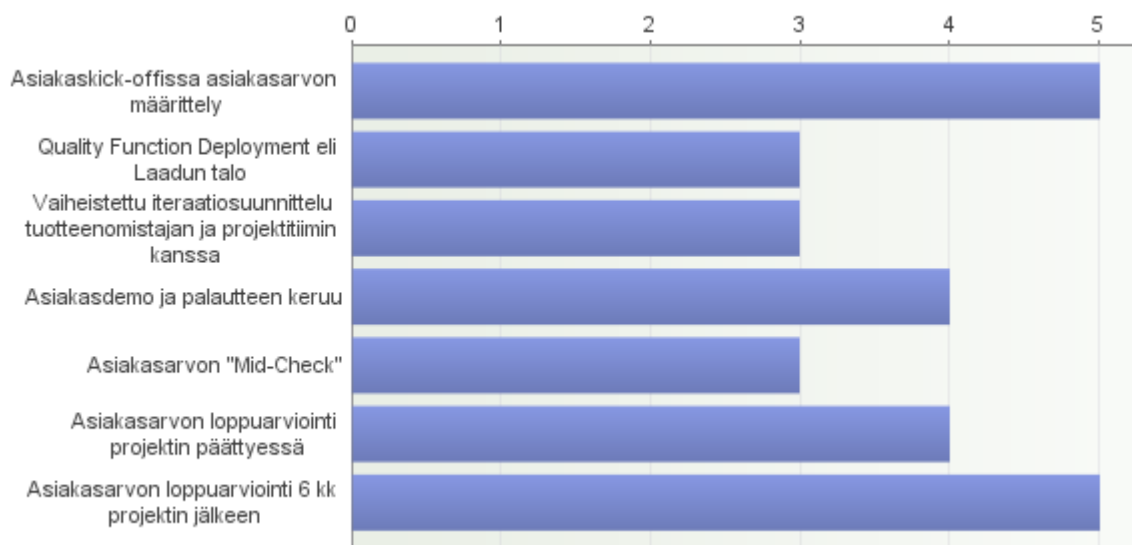
4. Oletko tutustunut ohjeistukseen Customer Value in Lean Project Management?

Vastaajien määrä: 9



5. Jos vastasit kyllä kysymykseen 4, merkitse hyödyllisiltä vaikuttavat työtavat asiakasarvon ymmärtämiseksi ja varmistamiseksi.

Vastaajien määrä: 5



6. Jos vastasit kyllä kysymykseen 4, anna halutessasi ohjeistuksesta tai sen kehittämisestä palautetta.

Vastaajien määrä: 3

- Vastasin kysymyksiin 5 ja 6 vaikken ollutkaan löytänyt ohjeistusta, vaan selailin sen nyt läpi. :) Kaikki kysymyksen 5 kohdat vaikuttavat hyödylliseltä, jätin kaksi tickaamatta siksi, että yksittäinen mid-check vaikuttaa liian harvalta (esim 2 vuoden projektissa voisi olla, että on jo menty vuosi "metsään") ja loppuarviointi projektin päättyessä on vielä spekulatiota, jos ei tuotantokäytöstä ole vielä tarpeeksi kokemuksia.
- Ehdottomasti kannattaa olla asiakasarvon mittarointia ja iteratiivista keskustelua asiakkaan kanssa palautetteen saamiseksi jo projektin aikana, eikä vasta projektin päätyttyä, jolloin projekti ei enää ehdi tehdä korjausliikkeitä.
Arviointi 6 kk projektin jälkeen tehdään luonnollisesti aina, jos projektin tuotos siirtyy Fujitsulla jatkuvaan palveluun.
Jos Fujitsu ei tuota jatkuvaa palvelua, vaan projekti oli kertaluonteinen, niin 6kk jälkeen kannattaa kuitenkin yrittää, jospa asiakas on vielä kiinnostunut antamaan palautetta.
- Arvon tuottamisessa on keskeistä ymmärtää, mitä arvontuottoa asiakas odottaa investoinnilta, joka toteutetaan projektina. Tämän ymmärryksen osalta on tärkeää ymmärtää arvontuottoketju: Projektin tuotos => kyvykkyys => hyödyt / kustannukset => arvontuotto. Lisäksi on huomioitava, että arvontuotto määräytyy myös sen mukaan, miten nopeasti sitä saadaan. Tämän vuoksi on projektin aikana tärkeää varmistaa riittävän kyvykkyuden syntyminen hyötyjen tuottamiselle, hyötyjen tuottamisen kustannukset, riskit ja ajankohta, jolloin hyödyt lähtevät toteutumaan ja jolloin niitä oikeasti voidaan vasta mitata, koska aiemmat mittaukset ovat monesti vain tunnepitoisia subjektiivisia arvioita.

Siis ketterä toimitusmalli on hyvä lähtökohta kyvykkyuden ja hyötyjen syntymisen varmistamisen optimoimiseksi. Iteraatioisyklejä suunniteltaessa on kuitenkin koko ajan huomioitava se, että projektin lopputuotokokonaisuuteen tehtävät muutokset tuottavat todella hyötyjä ja kustannussäästöjä eivätkä lisää projektin aikatauluriskiä tai kustannuksia, niin paljon, että saatava lisäarvo muuttuu negatiiviseksi.

Käytännössä tämä voi tarkoittaa esimerkiksi sitä, että projekti ei pysty tuottamaan riittävää kyvykkyttä ja/tai varmistamaan hyötyjen toteutumisen aloitusajankohtaa eli tuotantokäytön aloitusta aikataulussa ja iteraatioissa tehdyistä muutoksista saatava lisäarvo ei kata menetettyä arvontuottoa aikataulun viivästymisen vuoksi.

Projektin arvontuottoa mietittäessä on tietenkin aina pidettävä mielessä se tosiseikka, että asiakas myös itse vaikuttaa hyötyjen ja arvontuoton syntymiseen omilla projektiin liittyvillä toimenpiteillään, joten asiakas on myös saatava ns. "samaa veneeseen".